BUREAU OF HYGIENE AND TROPICAL DISEASES.

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AMOEBIASIS AND DYSENTERY.

Amoebiasis.

BIGGAM (A. G.). **Acute Amoebic Dysentery and Amoebic Ulceration of the Small Intestine.**—*Trans. Roy. Soc. Trop. Med. & Hyg.* 1930. Nov. 25. Vol. 24. No. 3. pp. 347–350. [4 refs.]

A valuable and complete description of two cases of acute amoebic dysentery, demonstrating that history alone cannot be relied on, for in both cases an acute and sudden onset with no previous history of dysentery and rapidly fatal termination despite antamoebic treatment, suggested rather a bacillary infection. In Case No. 1 scanty entamoebae were found on microscopic examination of the fresh stool; but in Case No. 2 none were found after repeated stool examination; the diagnosis was established only after sigmoidoscopic inspection had revealed typical amoebic ulcers, from a scraping of one of which large numbers of actively motile *E. histolytica* were recovered. The author points out that when a bed-pan specimen only is examined, repeated negative microscopic results cannot always definitely exclude an acute amoebic infection. The autopsy finding of healthy mucous membrane between the amoebic ulcers proved that the cases were pure amoebic, and not mixed amoebic and bacillary infection. The author points out further that involvement of small intestine in these two cases is at variance with the generally accepted view that amoebic ulceration rarely if ever extends above the ileo-caecal valve.

H. M. Hanschell.

GHARPURE (P. V.) & SALDANHA (J. L.). **Some Observations on Human Amoebiasis. (Being an Analysis of Post-Mortem Findings in 426 Cases.)**—*Indian Med. Gaz.* 1931. Mar. Vol. 66. No. 3. pp. 132–135. With 2 graphs in text. [1 ref.] [Grant Med. College, Bombay.]

The series comprises 169 cases with hepatic lesions, and 257 with intestinal lesions only and is the result of the authors' first hand experience during five years conducting of a large number of detailed autopsies in Bombay, and their analysis of the postmortem records of the last 40 years at the Grant Medical College. They point out that cases for autopsy from the children's hospital are rare.

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The paper is necessarily a catalogue of data—forbidding any useful summary. The two tables here given may serve as some indication of the paper's scope.

Age Incidence.	Percentages.		
Age.	Amoebic dysentery. 257 cases.	Liver abscess. 169 cases.	Total. 426 cases.
Below 10	0·9	0·0	0·6
11 to 20	12·5	6·1	9·6
21 to 30	32·8	37·0	33·3
31 to 40	28·5	39·8	32·6
41 to 50	17·4	9·7	15·6
51 to 60	4·8	6·0	5·6
61 to 70	2·7	0·7	2·1
71 to 80	0·4	0·7	0·6

Sex Incidence.	Percentages.		
Sex.	Amoebic dysentery. 257 cases.	Liver abscess. 169 cases.	Total. 426 cases.
Male	90·6	97	93·8
Female	9·4	3	6·2

H. M. H.

FAUST (Ernest Carroll). **The Incidence and Significance of Infestation with *Endamoeba histolytica* in New Orleans and the American Tropics.**—*Amer. Jl. Trop. Med.* 1931. May. Vol. 11. No. 3. pp. 231–237. With 2 text figs. [16 refs.] [Gorgas Memorial Lab., & Dept. of Trop. Med., Tulane Univ. of Louisiana, New Orleans.]

The Charity Hospital and Boys' Home groups in New Orleans comprise approximately 1,000 individuals, and the Santo Tomas Hospital and Chagres River Villages groups in Panama 2,000 individuals. This tabular summary shows the significance of diagnosing those cases in which only cysts are passed as contrasted with those in which active trophozoites are seen. In the most heavily infested communities (including those in which acute dysentery in the native population is uncommon) cysts are much more common than trophozoites. This suggests a developing racial tolerance to the parasite. Populations with a high incidence usually have a heavy infestation and vice versa. Therefore a person with a heavy infestation from a lightly infected (non-immune ?) group is more likely to develop an acute amoebic colitis than one of a similarly high amount from a highly parasitized group. In heavily infested individuals in a population with a high incidence the evidence favours the view that *E. histolytica* is, in the

Population groups.	Every examination positive.	Two out of 3 examinations positive.	Only first or second examination positive.	Only third examination positive.	Positive only after 3 examinations.	Cysts only.	Trophozoites only.	Cysts and Trophozoites.
	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.
Charity Hospital New Orleans	10·5	42·1	31·6	10·5	5·3	42·1	26·3	31·6
Hope Haven Boys' Home	55·5	11·1	33·3	0·0	0·0	100·0	0·0	0·0
Hospital, Santo Tomas	15·3	19·1	41·2	16·8	7·6	47·3	22·9	29·8
Chagres River Villages	14·8	29·0	31·4	24·8	0·0	90·9	2·4	6·6

great majority of cases, essentially in complete equilibrium with the host tissue, and in some cases possibly not a tissue parasite at all, but, like this organism in certain species of monkeys, is a commensal, feeding only on starch, bacteria and mucous secretions of the large bowel.

H. M. H.

ANDREWS (Justin) & PAULSON (Moses). **The Incidence of Human Intestinal Protozoa. With Especial Reference to** *Endamoeba histolytica,* **in the Residents of the Temperate Zone.**—*Amer. Jl. Med. Sci.* 1931. Jan. Vol. 181. No. 1. pp. 102–106. [14 refs.] [School of Hyg. & Public Health, Johns Hopkins Univ., & Johns Hopkins Hosp. & Med. School, Baltimore.]

A survey of human intestinal protozoa with especial reference to *E. histolytica* among adults residing in their ordinary homes in a large city, Baltimore, who appeared at an outpatient clinic seeking relief from gastro-intestinal symptoms. In 522 cases studied, the total incidence of human protozoa infesting the intestinal tract was 10·9 per cent.; by species: *E. histolytica* 0·2 per cent. (one case); *E. coli* 4·2; *Endolimax nana* 2·5; *Iodamoeba williamsi* 1·3; *Trichomonas hominis* 2·1; *Chilomastix mesnili* 1·3; *Giardia lamblia* 2·7; and *Embadomonas intestinalis* 0·2 per cent.

[The low incidence of *E. histolytica* is especially noteworthy.]

H. M. H.

CASTELLANA (Antonio). Contributo alla epidemiologia e profilassi della amebiasi in Palermo e Sicilia. [**Epidemiology and Prophylaxis of Amoebiasis in Sicily.**]—*Riv. Sanitaria Siciliana.* 1931. Apr. 1. & 15. Vol. 19. Nos. 7 & 8. pp. 475–8, 481–4, 487–90; 555–8, 561–4, 567–9. English summary. [61 refs.] [Hyg. Inst., Univ., Palermo.]

The existence of amoebic dysentery in Sicily has been noted since 1912, but there has been marked increase of notifications in recent years; 29 in 1928, 77 in 1929, 151 in the first nine months of 1930, at Palermo. This is due, at least in part, to greater knowledge of the infection and more attention being given to it by sanitarians. A large proportion of the patients are children; 118 cases were treated at the Children's Clinic between 1927 and the beginning of 1930, and 84 of

these were below 2 years. The disease is not localized ; 26 districts in the Province are named as furnishing cases.

The causes for prevalence of dysentery are stated to be the fertilization of vegetables with human excreta, the fact that vegetables and fruit are commonly eaten raw, that there is no proper sewage system beyond a series of badly kept canals, that the water supply is not beyond reproach and that domestic hygiene is at a discount. Many of the patients were found living in small and dirty dwellings so that actual direct contact was probably the cause of many cases. It is not surprising that enteric is even more rife than dysentery. Many of the houses had cats, another likely intermediary, but the few examined were not proved to be cyst-passers. From a table giving the monthly returns of notifications and deaths from amoebic dysentery and of deaths from " enteritis, gastro-enteritis and dysentery not-specified " for the 3 years 1928–30 it is seen that June–August is the time of greatest prevalence and flies undoubtedly play no small part in disseminating infection. Prophylactic measures are obvious and need not be detailed.

H. H. S.

GOURVIL. Epidémie de dysenterie amibienne observée dans la garnison de Libourne. [**Epidemic of Amoebic Dysentery in the Libourne Garrison.**]—*Ann. de Méd. et de Pharm. Colon.* 1930. Apr.–May–June. Vol. 28. No. 2. pp. 235–243. [2 refs.]

A description of an outbreak of dysentery near Bordeaux in European and non-European troops (Senegalese and Malagasies). The author notes that the epidemic character of the outbreak at first suggested bacillary dysentery : a suggestion supported indeed by the clinical features—high fever, great prostration, very frequent sero-sanguineous bowel evacuations—of some of the cases. However the diagnosis of amoebic dysentery was reached and maintained on finding in the stools of every patient cells, 30 to 35μ, showing distinct endo- and ecto-plasm, and in the endo-plasm numerous red blood cells. The ecto-plasm protruded pseudopodia. [No description of nucleus given ; and all doubt as to the amoebic nature of these cells is not dispelled.]

H. M. H.

GERBASI (M.). Osservazioni e ricerche sulla amebiasi nei lattanti. [**A Study of Amoebiasis in Infants.**]—*Pediatria.* 1931. Jan. 15. Vol. 40. No. 2. pp. 65–95. With 4 graphs in text. [11 refs.] [Inst. of Clin. Pediatrics, Univ., & G. di Cristina Children's Hosp., Palermo.]

The author notes the number of cases of amoebiasis attending the Institute between 1922 and May 1930, namely 151, of which 63 were below 12 months of age. He deals with 50 of the latter. Conclusions founded on so small a number must of necessity be received with caution. Epidemiologically, the disease would appear to be widespread in Sicily since patients were brought from districts far apart. It is worthy of note that amoebic hepatitis was not found in any case, and that a frequent and much dreaded complication was a meningo-encephalitis, practically always fatal. The author remarks that urinary amoebiasis may persist as the sole localization of the infection, but that this fact does not make the prognosis any more grave.

H. H. S.

Revue de Médecine et d'Hygiène Tropicales. 1930. Nov.–Dec. Vol. 22. No. 6. pp. 268–312.—Amibiase. [**Amoebiasis.**] [9 papers.]

These nine papers by various authors on amoebiasis record much that is the accepted commonplace knowledge of amoebic infection and much more—e.g., "typhlite amoebienne aiguë"; and "troubles nerveux réflexes," and "manifestations d'ordre neuro-psychiatrique"—the amoebic origin or causation of which is claimed: but the claim is not made out to anyone who trammels a clinical fancy by tested and controlled evidence.

H. M. H.

i. Panayotatou (Angélique). Quelques remarques encore sur l'"amibiase extra-intestinale." [**Extra-Intestinal Amoebiasis.**]—*Rev. Prat. Malad. des Pays Chauds.* 1930. Nov. Year 9. Vol. 10. No. 11. pp. 501–507. [7 refs.]

ii. Farmakidis (C.). A propos de l'amibiase extra-intestinale.—*Ibid.* pp. 508–511.

i. A brief summary of the dicta [still unfounded on parasitological proof, which is not noted by the author] of various authors in favour of the thesis that the amoeba may spread all over the body and may infect most organs. A thesis the author confirms from her experience in Alexandria.

ii. Professor Farmakidis ranges himself alongside Dr. Khouri in insisting on the necessity of rigorous scientific proof for the existence of amoebic bronchitis and urinary amoebiasis in Alexandria. During three years among a large number of patients at his hospital none of such cases have been found. Moreover in those amoebic dysentery patients who presented signs of bronchitis or urinary symptoms, search in the sputa or in the urine, respectively, never revealed the amoeba.

He cites two cases, diagnosed by colleagues as "amoebic bronchitis" on the strength of temporary relief of symptoms following emetine treatment. One was found to have heart disease with pulmonary congestion and consequently haemoptysis: the other a pulmonary cavity with many tubercle bacilli in sputum.

H. M. H.

Barrow (John V.) with the collaboration of Stacy Woodard. **A Study of Human Amebiasis by Means of the Motion Picture.**—*Jl. Amer. Med. Assoc.* 1931. Jan. 17. Vol. 96. No. 3. pp. 167–170. With 16 text figs.

The application of the moving film to microscopy must one day make real Dr. Barrow's confessed desire to have the medical profession observe the human amoebiasis as plainly as he has seen it. The illustrations to this paper are excellent, though still, samples from the amoebiasis motion picture. A study of the whole picture has revealed plainly the morphological and bionomical characteristics of *E. coli* and *E. histolytica*. The value of such a film for teaching purposes is obvious.

H. M. H.

HONNA (F.). **Appendicitis caused by** *Endamoeba histolytica.—Taiwan Igakkai Zasshi* (*Jl. Med. Assoc. Formosa*). 1930. Dec. No. 309. [In Japanese. English summary p. 87.] [Govt. Hosp., Taihoku.]

The author notes that although cases of appendicitis in the course of amoebic dysentery have been recorded, yet true appendicitis caused by *E. histolytica* seems to be very rare; only HOGAN has reported one undoubted case with positive proof of the amoeba and with good illustrations. In the author's case the appendix after removal showed small ulcers on its internal surface. Histological examination revealed typical ulcers of mucosa and submucosa and numerous *E. histolytica* in these tissues. Among 739 appendicectomies in the last 9 years this case was unique although amoebic dysentery is frequent in the district.*

H. M. H.

SNYDER (J. W.). **Liver Abscess.**—*Southern Med. Jl.* 1931. June. Vol. 24. No. 6. pp. 497–503. With 1 text fig. [19 refs.]

The author suggests that while aspiration alone is the method of choice for the tropics, where there is extensive experience of liver abscess, yet where liver abscess is rare, diagnosis is difficult and an exploratory operation a valuable aid to diagnosis and a means of avoiding unfortunate errors; e.g., to plunge an aspirator into an indefinite swelling in epigastrium would be surgically unsound. Among his cases, here quoted, is one illustrating the ease with which an abscess in posterior portion of liver can be drained by anterior approach. A long drainage tract was burnt (cutting cautery) through healthy liver. Autopsy twenty-five days later revealed abscess cavity and tract so nearly healed that the liver itself appeared normal, scar tissue being extremely small.

H. M. H.

CASONI (Tommaso). Sulla cura medica dell' ascesso epatico amebico. [**Medical Treatment of Amoebic Abscess of the Liver.**]—*Policlinico.* Sez. Prat: 1931. Feb. 9. Vol. 38. No. 6. pp. 183–189. [Vittorio Emanuele III Colonial Hosp., Tripoli.]

The author records four cases, one in full detail, three more briefly; in one the patient was *in extremis* and the abscess apparently pointing, with oedema of the chest wall, and a priest had administered the last rites. Amoebic pus was proved by exploratory puncture in one, and the physical signs in all were unmistakable. Intensive treatment with emetine hydrochloride subcutaneously, 12 cgm. daily, and in one case 16 cgm. the first day in 4 doses, was followed by cure in all. They have been followed up, one for 1 year, one for 7 years, the others for " several years," but none has shown any signs of relapse.

The author maintains, therefore, that neither the gravity of the condition nor the size of the abscess are contraindications to medical treatment and judging from 25 cases observed by him he is confirmed that the only indications for surgical measures are the presence of bacteria in the fluid obtained by exploration (that is, in a condition not purely amoebic) and perforation into pleura, pericardium or peritoneum.

H. H. S.

* See also this *Bulletin*, Vol. 25, p. 620 (BA CHOW).

WILLOUGHBY (Hugh) & ASLETT (Edward). **The Treatment of Amoebic Dysentery and its Complications.**—*Jl. Roy. Nav. Med. Serv.* 1931. Jan. Vol. 17. No. 1. pp. 19–26. With 1 text fig. [Hosp. for Trop. Diseases, London.]

In this careful concise summary of the subject the authors point out that amoebic dysentery treated solely with injections of emetine hydrochloride is not radically cured; relapses occur usually within twelve months. Emetine hydrochloride injections should not be given oftener than once daily and 10 injections (1 grain each) constitute a full course. Its use should be limited to cases where immediate hospital treatment is not available—i.e., first aid measure, or during acute dysenteric symptoms, or where abscess formation in liver or elsewhere is threatened or suspected and severe hepatitis exists. For the above purposes two or three injections should be sufficient—after which hospital treatment should be instituted: viz., bed, light diet, emetine bismuth iodide (E.B.I.) (26 per cent. emetine alkaloid) per os, 1st night 1 grain, 2nd night 2, 3rd and subsequent nights 3, up to a total in 10 days of 27 grains. More than one course may be needed in the relapsing cases: E.B.I. is highly toxic, and must not be given unless the patient's cardiac condition is good.

Emetine periodide is much less toxic, should be given when E.B.I. is not tolerated, and is especially suitable for women patients. The dosage is 2 grains twice daily for twelve days.

Stovarsol alleviates diarrhoea; 4 grains twice daily by mouth produces tonic effect; and is especially useful for after treatment during convalescence.

Yatren 105 can be given orally, by enema, subcutaneously, or intravenously. 0·5 gram t.i.d. per os for 10 days is normal course for an adult, to be repeated after a week's interval. In pill form yatren acts best as an after treatment or when acute symptoms have been controlled by other means. The best method of administering it is by rectal enema—10 oz. of a 2½ per cent. solution preceded an hour earlier by 1 pint enema of 2 per cent. solution of sodium bicarbonate. The yatren enema is retained for 5 to 8 hours. Yatren enemata daily for 10 days given in combination with E.B.I. is the best treatment for amoebic dysentery. Out of 150 cases so treated the authors noted but one relapse.

Complications: Amoebic hepatitis is treated by injections of emetine hydrochloride. If abscess formation be suspected exploratory aspiration must be undertaken. If pus be located aspiration should continue until all pus is evacuated; after-treatment by thorough course of E.B.I. and yatren.

H. M. H.

MATTEI (Charles). De l'emploi de l'émétine dans le traitement des suppurations pulmonaires en dehors de l'amibiase caractérisée. [**Employment of Emetine in Treatment of Pulmonary Suppuration, Amoebiasis Apart.**]—*Rev. Méd. de France et des Colonies.* 1930. May. Vol. 7. No. 5. pp. 167–196. With 1 chart in text. [3 pages of refs.]

An interesting paper in which the author discusses the matter very fully and gives clinical records of illustrative cases. In the end he concludes [necessarily] lamely that there are certainly cases of pul-

monary suppuration of disputable amoebic origin which emetine has rapidly cured. Among these of doubtful origin, some have run an acute course : and it is difficult to attribute their cure solely to emetine. The cure of chronic cases is in favour of some definite action of emetine. But it has not been proved that these cases were not in origin amoebic—although one must be cautious about accepting primary extra-intestinal amoebiasis.

On the other hand, in those cases of pulmonary suppuration where, so far as is possible, amoebic origin could be excluded, emetine has not been appreciably successful. Temporary improvements do not denote any particular effect of emetine, for chronic pulmonary suppurations have periods of remission. Nevertheless in doubtful cases it is the clinician's duty always to try " un traitement d'épreuve par l'émétine."

H. M. H.

REED (Alfred C.). **Emetin and the Treatment of Amebic Colitis.**—*Amer. Jl. Med. Sci.* 1931. Apr. Vol. 181. No. 4. pp. 553–560. [4 refs.] [Pacific Inst. of Trop. Med., Univ. of California, San Francisco.]

The author notes that emetine poisoning shows itself clinically in three chief syndromes : in the gastro-intestinal tract, in the nervous system and in the circulatory system. Deaths have been reported from its effects on the circulatory system. In addition there may be severe local reaction to its hypodermic injection, e.g., sloughing from its intramuscular injection, and a definite cumulative action must invariably be remembered. It is a powerful, dangerous and valuable remedy whose complete action is not yet known. The treatment of intestinal amoebiasis must cover a sufficient duration of time, irrespective of symptoms. The total amount of emetine given in one course must not exceed 0·010 gm. per kilo of body weight.

[The author appears unaware of the experimental observations of YOUNG and TUDHOPE (this *Bulletin*, v. 24, p. 13). They showed that emetine " neuritis " was in fact a myositis.]

H. M. H.

RONNEFELDT (F.). Amöbenruhrbehandlung mit Rivanol. [**Treatment of Amoebic Dysentery with Rivanol.**]—*Arch. f. Schiffs- u. Trop.-Hyg.* 1931. Mar. Vol. 35. No. 3. pp. 176–180. [4 refs.]

The author records the results of rivanol treatment in 14 cases (1 white child, 1 Syrian, 12 negroes) of amoebic dysentery. Five were severe cases, the rest slight. One of the severe cases died. The rest made apparent good recoveries. The author noted the marked antispasmodic value of rivanol. He does not claim these observations on 14 cases sufficient to warrant conclusions as to how long they will remain amoeba-free, or as to the effect of rivanol on liver complications.

H. M. H.

PANAYOTATOU (A.). L'amiphène contre les affections dysentériques. [**Amiphene for Dysentery.**]—*Bull. Soc. Path. Exot.* 1931. Jan. 14. Vol. 24. No. 1. pp. 28–34.

The author cites from her practice 10 cases, acute and chronic, of colitis; claimed to be due to an infection with *E. histolytica* on finding amoebae

and/or cysts in the stools; and further, clinical and parasitological cure claimed by treating the cases with amiphène, in cachets by mouth. Eight of the cases, however, were given emetine injections as well.

H. M. H.

Holder (Hall G.), Osborne (Clyde J.) & Sommermeyer (Viola). **Diathermy in the Treatment of Amebiasis. Report of a Case.**—*California & Western Med.* 1931. Mar. Vol. 34. No. 3. pp. 189–190. With 3 text figs. [2 refs.]

Sigmoidoscopy revealed numerous small discrete ulcerations with grayish white base; mucosa markedly injected and dotted with numerous punctate haemorrhagic areas. It is stated that the patient had been ill for two months with amoebic dysentery and that he had apparently become drug fast. *E. histolytica* was found in the stools. Rectal diathermy was given, maintaining a temperature in rectum of 110°–114° F. for twenty-five minutes. After the third treatment proctoscopic examination showed no ulceration of mucosa; rectum and sigmoid appeared normal but for occasional petechiae. Stools were well formed and free from blood or amoebae. The patient gained weight and two months later was well, symptom free, and stool examination was negative.

H. M. H.

Anderson (Hamilton H.) & Koch (Dorothy A.). **Iodochloroxyquinoline (Vioform, N.N.R.) as an Amebacide in Macaques.**—*Proc. Soc. Experim. Biol. & Med.* 1931. May. Vol. 28. No. 8. pp. 838–841. [4 refs.] [Med. School Univ. of California, & Pacific Inst. of Trop. Med., Hooper Foundation for Med. Research, San Francisco.]

Seven of eight Macaques, naturally infested with *Entamoeba histolytica*, had remained free of these parasites for 3 months after receiving orally 900 to 1,200 mgm. per kilo of iodochloroxyquinoline (Vioform N.N.R.) given in divided doses over 3 to 6 weeks. The stools of 2 of 3 monkeys infested with *Balantidium coli* have been negative during this follow-up period. Of the 2 monkeys harbouring *Strongyloides stercoralis*, one was cleared of this infestation. The authors believe that important factors in their results were the hygienic conditions maintained and the precautions taken to prevent reinfection in animals under treatment. All treated animals gained weight, developed normally, and showed marked general physical improvement, following the therapeutic régime. None showed evidence of drug toxicity.

H. M. H.

Cleveland (L. R.) & Sanders (Elizabeth P.). **The Production of Bacteria-free Amoebic Abscesses in the Liver of Cats and Observations on the Amoebae in Various Media with and without Bacteria.**—Reprinted from *Science*. 1930. Aug. 8. Vol. 72. No. 1858. pp. 149–151. [Med. School, Harvard Univ., Boston.]

This very interesting paper is itself so summarily concise [and all the better therefor], and yet so compact of essential experimental evidence that to summarize again is to do it much injustice. Only a few points may be abstracted from it. On three occasions the authors obtained bacteriologically sterile amoebae after washing the cysts of *E. histolytica*. Several million cysts were washed (by methods described) and

most of them were killed in the process for only a few amoebae were obtained. None of these bacteria-free trophozoites lived longer than six days, and after the second day they were evidently abnormal organisms both in size and movement, perhaps as result of the treatment employed.

The authors have taken advantage of the fact that the cat's liver can destroy many kinds of bacteria. By laparotomy and direct inoculation into cat's liver they found that inocula, 0·2 to 0·3 cc., of dysenteric stool failed to produce bacteria-free abscess ; the majority of animals died within two or three days. With culture inocula, 0·5 cc., containing, besides the culture bacteria, about 5 million amoebae, they succeeded, out of 30 cats inoculated into liver, in producing liver abscesses in 12 and in 8 of these amoebae were obtained in culture free of all bacteria (aerobic and anaerobic culture). The culture inoculum should be at least a month old and from 7 to 9 days after inoculation into cat's liver is the best time to obtain amoebae with no bacteria. The authors cannot state definitely yet just what happens to the abscesses which contain no bacteria if the animal is not killed for examination, because they have not carried out a sufficient number of experiments. But their experiments so far indicate that soon after the abscess becomes free of bacteria it begins to heal and within five to ten days no amoebae are present.

As result of inoculation of amoebae and bacteria into the cat's liver they failed sometimes to produce abscesses and sometimes produced abscesses ranging all the way from purely bacterial ones with no amoebae in them to those containing only amoebae. Whenever amoebae were present in an abscess, regardless of whether bacteria were present or not, there was no membrane or wall of granulation tissue at the periphery of the abscess. Whenever pus was present in the abscess the amoebae were always to be found accompanied by bacteria. With much pus the amoebae were confined to outer portion near uninjured tissue ; but when no bacteria were present the entire " abscess " was hard and dry and distribution of amoebae was uniform throughout. In the abscesses studied there was no indication that amoebae ever bring about pus formation. However, if the abscesses were to run a long time—months, years, as they are supposed to do in man—possibly pus might be formed. The bacteria-free amoebae obtained from these abscesses have been placed in many kinds of culture media, but in no instance have they lived longer than 14 days.

On a medium composed of liver infusion agar slant covered with serum saline and sterile rice flour, the amoebae grew well eventually with the spore forming bacteria *B. niger*, *B. mesentericus*, *B. brevis* ; while with *Bact. coli communis*, *Vibrio cholerae* and *Neisseria catarrhalis* they grew well from the start. There was little or no multiplication with *Bacillus megatherium*, *B. cereus*, *B. subtilis*, *Proteus vulgaris*, *Bact. acidi-lactici*, *Pseudomonas aeruginosa*, and *Bact. faecalis alcaligines*.

H. M. H.

CLEVELAND (L. R.) & SANDERS (Elizabeth P.). **The Virulence of a Pure Line and Several Strains of *Entamoeba histolytica* for the Liver of Cats and the Relation of Bacteria, Cultivation, and Liver Passage to Virulence.**—*Amer. Jl. Hyg.* 1930. Nov. Vol. 12. No. 3. pp. 569–605. [11 refs.] [Med. School, Harvard Univ., Boston.]

This extensive experimental research is set out in the fullest detail ; some indication of its purpose, value and results may be given by

recording here that the authors found that under their experimental conditions, bacteria capable of doing some damage to the liver must accompany the amoebae before the latter are capable of maintaining themselves in the liver and producing an amoebic abscess. This, however [they note], may not be true of more virulent strains of *E. histolytica*; and, until further experiments are carried out, the general statement that bacteria must be present in the beginning of amoebic abscesses should not be made. In their pure line amoebae that had been in culture for a year or more an increase in the percentage of animals that became infected with passage was readily seen, although the bacteria may have been entirely responsible for the increase, just as they were in the liver passages. Amoebic abscess may be developed just as readily in the liver of adult cats as in kittens.

E. histolytica cultivated from acute cases of dysentery was found to be more infectious for the liver than for the intestine. The amoebae from carriers who had never had dysentery and from monkeys were found to be less pathogenic than amoebae from acute cases of dysentery, even after the latter had been cultivated for a year or more and had not been inoculated into animals. All attempts to produce brain abscesses in kittens, guineapigs and rabbits failed. Eight cats inoculated into liver via mesenteric vein did not develop liver abscess. No abscesses developed in any of the 9 monkeys, 16 rats, and 7 rabbits, that were inoculated into the liver.

H. M. H.

Simic (Tshedomir). Faut-il attribuer à l'amidon de riz la perte de l'action pathogène des amibes de culture ? [**Is the Loss of Pathogenic Power of Cultural Amoebae attributable to Rice Starch ?**]—*Ann. Parasit. Humaine et Comparée.* 1930. Dec. 1. Vol. 8. No. 6. pp. 577–581. [3 refs.] [Hyg. Inst., Skoplje, Yugoslavia.]

The author gives details of his experiments. They lead him to conclude that culture and subculture of *Entamoeba histolytica* from the stools of man or cat, on artificial media cause the entamoeba to become more resistant to cold and less pathogenic for the cat; but after passage again through cat it again becomes less resistant to cold and more pathogenic to the cat. Strains of *E. histolytica* markedly pathogenic in the early subcultures become, after further subcultures, little or not at all pathogenic for the cat, but can be reinvigorated after cat passage. The author's strain of *E. histolytica* kept in culture for 245 days, on Loeffler-serum-Ringer medium, always with rice starch, has always proved infective for the cat, provided that it were passed from time to time through that animal.

H. M. H.

Kagy (Edwin S.) & Faust (Ernest Carroll). **Effect of feeding Raw Liver to Dogs Infected with** *Endamoeba histolytica.*—*Proc. Soc. Experim. Biol. & Med.* 1930. Dec. Vol. 28. No. 3. pp. 252–253. [Dept. of Trop. Med., Tulane Univ., New Orleans.]

Four dogs on balanced diet were infected with an *E. histolytica* strain. A week or more later when the dogs showed active symptoms of dysentery, and were passing trophozoites of *E. histolytica* in stools, a single portion of 250 gm. of fresh calf's liver was fed to each animal. In each case bowel movements were markedly reduced within 24 hours;

stools became semi-formed with blood and mucus still present. In 3 of the 4 dogs cysts were present in the passed stools within one to seven days and continued intermittently until death of the animal (a few days to three weeks later). In each case proctoscopy revealed active lesions containing trophozoites. In the one animal in which cysts were not formed *E. histolytica* trophozoites were present on the day following the liver meal, but were not recovered subsequently. The animal died a week later of a profound bacteraemia. This feeding test (undertaken as a result of CLEVELAND and SANDERS' observations on encystation of *E. histolytica* grown on liver infusion agar medium, this *Bulletin*, Vol. 27, p. 887) suggests that liver substance plays an important role in providing a medium favourable for encystation of *E. histolytica* in the bowel. The fraction of the liver responsible is the subject of further study by the authors, who believe, however, that dehydration of the large bowel content is intimately associated with the problem of encystment.

H. M. H.

BOYD (J. S. K.). **Notes on an Outbreak of Amoebic Dysentery occurring among the Hounds of the Bangalore Hunt.**—*Jl. Roy. Army Med. Corps.* 1931. Jan. Vol. 56. No. 1. pp. 1–13. With 15 figs. [8 refs.]

After careful investigation of the outbreak the author concludes that :—

" (1) Hounds are capable of suffering from, in epidemic form, amoebic dysentery caused by an amoeba presenting all the morphological characters of *E. histolytica*.

" (2) As far as was observed in a large number of examinations cysts are not formed. As extensive experimental evidence shows that vegetative amoebae are not, under natural conditions, a potential source of infection to others, it follows that infection from hound to hound is impossible.

" (3) An apparent source of infection was discovered in the ' dog-boy ' who prepared the food for the pack. Since he was dealt with by isolation and treatment no further cases have occurred.

" (4) The lesions did not resemble those in human amoebic dysentery. Rather they resembled those described by Brumpt as caused by *E. dispar* in the kitten. They were, however, more intense.

" (5) Emetine must be employed, if at all, with caution [e.g. 1 grain of E.B.I. produced death from cardiac failure in a hound weighing 60 lb.]. Probably better results will ensue from saline treatment and the administration of some specific *per os*."

H. M. H.

WALKIERS (J.). Un cas d'amibiase intestinale chez un bovide. [**Intestinal Amoebiasis in an Ox.**]—*Ann. Soc. Belge de Méd. Trop.* 1930. Dec. 31. Vol. 10. No. 4. pp. 379–380.

The ox suffered from muco-sanguineous diarrhoea. On examining its faeces by microscope the author found many erythrocytes, and *Amoeba histolytica* ; 25 to 35 microns, ectoplasm sharply differentiated from vacuolated endoplasm, and in the vacuoles red blood cells. No cysts were found. Cessation of symptoms following emetine in intramuscular injections.

H. M. H.

Borthwick (T. C.). **Haemoptysis due to** *Entamoeba histolytica.*—*China Med. Jl.* 1931. Feb. Vol. 45. No. 2. p. 151.

The patient aged 44 had in years gone by suffered from dysentery but had had none for a year when he coughed up bright red frothy blood, " mixed with pus which on microscopic examination was found to contain large numbers of protozoa which were indistinguishable [by the author] from *Entamoeba histolytica.*" The condition cleared up after four grains of emetine hydrochloride hypodermically.

H. M. H.

Bacillary Dysentery.

Costa Mandry (O.) & Garrido Morales (E.). La disentería bacilar en Puerto Rico. [**Bacillary Dysentery in Porto Rico.**]—*Bol. Asoc. Med. de Puerto Rico.* 1931. Feb. Vol. 23. No. 185. pp. 22–51. With 3 charts in text. [22 refs.]

The first part of this article is of historical interest for the author shows by quotations from a book by Pedro Tomás of Córdova in 1831, who himself obtained his information from a previous work by Valladares de Sotomayor (1789), that a disease with fever, diarrhoea and the passing of blood, liable to become epidemic, and with high fatality, had existed from 1598 when attempts at colonization by 1,000 men had to be abandoned after 400 had died within a brief period. The history is sketched down to the epidemic of 1928 which is more fully dealt with. This and a previous increase in cases in 1899 followed a hurricane. A fortnight after the hurricane, of September 1928, a large number of cases of " gastro-intestinal disturbance with abdominal pain, and diarrhoea with mucus and blood " were reported to the Health Department of San Lorenzo. During November, 1907 cases were reported in all, 527 (27 per cent.) from San Lorenzo, 465 in Cayey, 309 in Cidra, and the remainder in numbers from 185 or less in various municipalities. In the three specified, of 936 cases investigated 673 were in the rural zone, 263 urban. Altogether during the year 1928–29, 6,473 cases of dysentery were notified and 717 died in 77 municipalities. The majority [proportion not stated] were adults between 20 and 40 years of age. Bacteriological examination was carried out in a small number only, 137 stools, and the organism obtained was *Bact. dysenteriae* Flexner.

In July 1930, an outbreak occurred in the new penitentiary in Rio Pedras ; among 192 prisoners 38 were attacked during a period of 3 weeks, but odd cases cropped up during the next four months. The same type of bacillus was isolated. No fatalities are recorded.

H. H. S.

Bell (W. H.). **An Epidemic of Bacillary Dysentery in the United States Fleet.**—*U.S. Nav. Med. Bull.* 1931. Jan. Vol. 29. No. 1. pp. 139–172. With 1 text fig.

An interesting, very thorough, and valuable investigation of an epidemic of dysentery among the crews of ships operating in the Guantanamo area (Cuba). A sufficient preponderance of cases constituting the epidemic were of bacillary aetiology (Flexner) to characterize it as one of bacillary dysentery. The infection was conveyed from the Isthmus of Panama by one ship, the *Camden*, to

Guantanamo harbour. This ship was the primary focus from which the disease spread.

Various modes of contact dissemination may have been operative when the disease appeared on one after another of the several ships involved. The 51 members of the culinary force admitted to hospital make it a probable factor in dissemination ; but the harbour water, through various forms of contact with it, especially shower baths and swimming, was the principal medium of spread, beginning with the specific type of pollution supplied by the effluent of the *Camden* alone and augmented by one ship after another as successive ships developed cases of the disease.

H. M. H.

VAUCEL (M.) & BOISSEAU (R.). La dysenterie bacillaire à Brazzaville pendant l'année 1930. [**Bacillary Dysentery at Brazzaville in 1930.**] —*Bull. Soc. Path. Exot.* 1931. Apr. 15. Vol. 24. No. 4. pp. 267–271. [3 refs.] [Pasteur Inst., Brazzaville.]

Shiga ; and Flexner, Strong, Hiss and Pseudo-dysentery types of dysentery bacteria were all isolated. Percentage mortality from Shiga infections was double that of the other types. Bacillary dysentery as seen in Brazzaville had the same characters as in Europe, both clinically, and in the agglutination and biochemical reactions of the dysentery bacteria. A beginning has been made with preventive vaccination with formolized-Shiga-toxin.

H. M. H.

BUCHANAN (G.) & ROUX (Paul). **The Sonne Type of Dysentery in South Africa.**—*Jl. Med. Assoc. South Africa.* 1930. Nov. 22. Vol. 4. No. 22. pp. 685–687. [12 refs.]

This paper describes the clinical features of certain dysentery cases, resembling those of a mild Flexner dysentery ; and the bacteriological data whereby the identity of an organism isolated from the dysentery cases was established as *Bact. dysenteriae* Sonne. This is the first record of the Sonne type of dysentery in South Africa.

H. M. H.

NELSON (Richard L.). **Sonne Dysentery : a Report of Thirty Cases of Dysentery in Children caused by** *B. dysenteriae* **Sonne.**—*Amer. Jl. Dis. Children.* 1931. Jan. Vol. 41. No. 1. pp. 15–25. With 2 charts in text. [10 refs.] [Children's & Infants' Hosp., & Harvard Med. School, Boston.]

A careful study of thirty cases of dysentery in children, occurring in Boston, in which *Bact. dysenteriae* Sonne was demonstrated. The methods of isolation and identification of the Sonne bacillus are given ; and also records of the clinical features of the disease with case histories and clinical charts illustrative of the mild and severe forms. The author comments that the mildness of the majority of the cases is apt to indicate low virulence and consequent unimportance of the causative organism. One of his cases, however, shows it capable of assuming great invasive powers ; there was persistent vomiting and prostration,

and ketosis. At autopsy scrapings from intestine and ureter grew many colonies of Sonne bacillus. In a number of the convalescents there was persistence of the organism in the stools over long periods. Carriers are therefore probably an important mode of spread of the infection. Because of the mildness of symptoms in many cases, especially in adults, children may readily be infected by elders who have suffered from a mild diarrhoea. Diagnosis is best established by isolation of the organism from the stools. Absence of a positive agglutination does not rule out a Sonne infection. In many cases agglutinins are present in the serum but often in too low a titre to be of diagnostic value.

H. M. H.

Riding (D.). **Acute Bacillary Dysentery due to** *Bacillus para-Shigae.*—*Trans. Roy. Soc. Trop. Med. & Hyg.* 1931. Apr. 25. Vol. 24. No. 6. pp. 613–616. [5 refs.] [Wellcome Trop. Research Labs., Khartoum.]

A small epidemic occurring among some 60 British officials gave the opportunity for fixation of the probable incubation period of the Schmitz bacillus, *Bact. para-shigae*, as less than 4 days. Six cases of acute dysentery occurred and in all these the indole-positive strain of the bacillus was isolated. An opportunity also occurred of making comparison of indole-negative strains from two Sudanese natives with the positive strains and showed that each of these belonged to a serologically distinct and homologous group.

W. F. Harvey.

Keefer (Chester S.), Yang (Chi Shih) & Huang (K. K.). **Anemia associated with Chronic Dysentery : Clinical Considerations, with Special Reference to the Cause and Treatment.**—*Arch. Intern. Med.* 1931. Mar. Vol. 47. No. 3. pp. 436–466. With 14 text figs. [25 refs.] [Peiping Union Med. College, Peking.]

A report of the result of a very careful study of sixteen patients with anaemia associated with chronic dysentery (bacillary). The anaemia varied in morphological characters and in response to treatment. On the basis of their observations the authors conclude that the cause of the anaemia is not always the same, but the most important factors are the nutritional disturbances that result from faulty diet and a process that interferes with normal nutrition. In some patients, important contributory factors were gastric anacidity, or blood loss or infection. In the group as a whole were observed all of the clinical features said to be characteristic of pernicious anaemia : e.g., similar morphological blood changes, characteristic response to liver treatment, atrophy of tongue papillae, changes in nervous system. The authors attribute these changes to the nutritional disturbances.

H. M. H.

Silverman (Daniel N.) & Feemster (Roy). **Types of Bacterial Dysentery in the South : a Clinical and Bacteriological Study.**—*Southern Med. Jl.* 1931. June. Vol. 24. No. 6. pp. 504–507. [7 refs.] [Med. School, Tulane Univ. of Louisiana, New Orleans.]

In the Southern States bacillary dysentery is endemic and increasing in frequency. Shiga, Flexner and Duval types have all been demonstrated.

In chronic cases vaccine therapy gave best results. The authors think the unusual types of bacterial dysentery encountered, e.g. streptococci and *Bact. enteritidis*, were secondary to true dysentery.

H. M. H.

VAN STEENIS (P. B.). De toxische verwikkelingen bij bacillaire dysenterie. [**The Toxic Complications of Bacillary Dysentery.**]—*Nederl. Tijdschr. v. Geneesk.* 1931. Feb. 21. 75th Year. 1st Half. No. 8. pp. 882–889. [Military Med. Lab., Weltevreden.]

The three explanations given of the cause of these complications are: (1) that they are due to the dysentery bacillus itself (Shiga-Kruse type); (2) to its toxin; and (3) to an organism which has developed alongside the dysentery bacillus in the intestine. Of these, the second explanation seems the most probable. An analysis of 610 cases of clinically bacillary dysentery gave 21 suffering from one or more complications. These were: arthritis, usually of more than one joint 10; iritis 3; conjunctivitis 9; otitis media 2; otitis externa 9; myocardial degeneration 6; neuritis 1.

W. F. Harvey.

HÄSSLER (Erich). Epidemiologische, bakteriologische und klinische Beobachtungen an 235 ruhrkranken Kindern der Klinik in den Jahren 1926–1929; zugleich 2. Mitteilung ueber aktive Schutzimpfung gegen Ruhr. [**Epidemiological, Bacteriological and Clinical Observations on 235 Cases of Dysentery in Children. Immunization against Dysentery.**]—*Jahrb. f. Kinderheilk.* 1931. May. Vol. 131. (3 Ser. Vol. 81). No. 5/6. pp. 285–303. With 8 curves. [16 refs.] [Children's Clinic, Univ., Leipzig.]

Dysentery has now been admitted to be a common and not a rare disease in infants. In recent years attention has been largely focussed on the occurrence of "E" dysentery (Kruse), also very usually called Sonne dysentery. KRUSE named his dysentery strains A to J pseudo-dysentery, on the grounds that they produced only abortive disease in healthy adults. But the name "pseudo" is a misnomer so far as children are concerned.

Of the 180 "E" strains collected all but one coagulated milk within 3 weeks. The exception, nevertheless, reacted to "E" serum. As regards mortality the statement of KRUSE that the A to J strains are little pathogenic holds good for older children. In this respect the E strains behave like the others.

Active immunization was carried out with a killed agar vaccine intracutaneously administered and containing A, D, E, H and I strains. There are grounds for thinking that it brought about a diminution of house infection.

W. F. Harvey.

SEN (Rangalal). **Treatment of Acute Bacillary Dysentery in Children.**—*Calcutta Med. Jl.* 1930. Nov. Vol. 25. No. 5. pp. 215–219.

The author lays stress on the importance of counteracting dehydration, which is a common and dangerous feature of the clinical syndrome of

bacillary dysentery in children. He reports the decided success in his hands of bacteriophage (" Bacte-Dysenteri-Phage ").

H. M. H.

Wong (Dorothy Huie) & Wong (Amos I. H.). **The Significance of Dysentery Agglutinins in the Colostrum and Milk.**—*Nat. Med. Jl. China.* 1930. Dec. Vol. 16. No. 6. pp. 673–683. With 2 text figs. [19 refs.] [Peiping Union Med. College, Peking.]

The frequent occurrence of bacillary dysentery in a large number of apparently healthy patients after parturition attracted the authors' attention and led to a study of the agglutinins in colostrum and milk. Altogether 197 consecutive cases were investigated and showed a high percentage in which the findings were positive. The highest proportion of the reactions was to the mannite fermenters and this is in accordance with the predominant importance of these strains as compared with Shiga strains in the causation of the dysentery of Peiping. Agglutinins in the colostrum and in milk are taken to be just as indicative of actual infection or of the carrier state as would be their occurrence in the blood. The agglutination titre of colostrum was higher than that given by either milk or blood serum. In these estimations a titre of 1 in 200 was taken as the normal limit for mannite fermenters and 1 in 64 for the Shiga bacillus. On the basis of the presence of milk agglutinins 83·2 per cent. of Chinese women entering hospital are considered to have had a dysenteric infection. Proof that some of these were carriers was afforded by culture of the causative organism from the faeces.

W. F. Harvey.

Mennonna (Gerardo). Osservazioni intorno ad alcuni casi di dissenteria acuta bacillare in Brava (Benadir). [**Cases of Acute Bacillary Dysentery in Brava (Italian Somaliland).**]—*Arch. Ital. Sci. Med. Colon.* 1931. Jan. 1. Vol. 12. No. 1. pp. 50–54. English summary (6 lines).

The author's summary runs—

" The author noticed in October 1929 a seat of acute bacillare dysentery started in Brava following heavy rains. This seat extinguished itself soon with the ceasing of the damp ambient; the disease had a serious and quick course; the antidysenteric serotherapy was efficacious; the general antidysenteric prophilaxis contributed to drive away the danger from the natives and especially from our countrymen."

A. G. B.

Mixed and Unclassed Dysentery.

de Mendonça (F. Carneiro). Investigações nas dysenterias do Rio de Janeiro no anno de 1930. [**Dysentery in Rio de Janeiro in 1930.**]—*Brasil-Medico.* 1931. Feb. 7. Vol. 45. No. 6. pp. 124–129.

This is a bacteriological study of 804 cases. Bacilli were isolated in 220 or 27·4 per cent.; the Flexner type greatly predominated, there being 162 (73·6 per cent.) to 46 (21 per cent.) Shiga, the remaining few being Sonne and Schmitz bacilli. 453 possible carriers were examined among whom 22 were found positive: Flexner 20, Shiga and Schmitz one each. The total 804 are, for purposes of description, divided into 516 urban and 288 rural cases. The relative proportions of the types

of bacillus found differed but little in the two groups. Of 153 urban positives there were 114 (74·5 per cent.) Flexner, 32 (20·9 per cent.) Shiga, Sonne 4 and Schmitz 3. Sixty-seven of the 288 rural cases were positive, Flexner 48, Shiga 14, Sonne 4, and Schmitz 1. Amoebae were found in one instance only, the stools not being fresh enough for search to be of any value in this respect. Macroscopic examination and the cellular content of the stools in relation to type of organism are also considered, but nothing new is recorded. Serum agglutination tests were carried out on 114 patients, with positive results in one-third of the cases. Twenty-one of the 38 agglutinated *Bact. dysenteriae* Shiga, 14 Flexner and 3 the Schmitz bacillus. The actual titres are not stated, but all were above 1 in 100.

H. H. S.

Peruzzi (Mario). La *Vibriothrix zeylanica* di Castellani nelle affezioni enteriche ad Alessandria (prime constatazioni in Egitto). [*Vibrio zeylanica* **of Castellani in Intestinal Affections at Alexandria.**]—*Ann. di Med. Nav. e Colon.* 1930. Sept.-Oct. Year 36. Vol. 2. No. 3–4. pp. 541–549. [11 refs.] [Benito Mussolini Italian Hosp., Alexandria.]

————. **Observations on the Occurrence of** *Vibriothrix zeylanica* **Castellani in Egypt.**—*Jl. Trop. Med. & Hyg.* 1931. June 1. Vol. 34. No. 11. pp. 147–149. With 1 text fig. [13 refs.]

In a systematic examination of the faeces of 74 patients there were isolated 7 strains of *Vibriothrix zeylanica*. This organism when found is commonly associated with cases of ulcerative bacillary dysentery. Here also 6 out of the 7 strains isolated showed this association; in 4 the Shiga-Kruse bacillus was isolated and in the remaining 2 the serum reactions afforded evidence of the existence of dysentery. The 7th case was the most interesting and exceptional inasmuch as the association was with the typhoid and not with the dysentery bacillus. The patient was extremely ill and died in hospital. *Bact. typhosum* was isolated from the stools. Blood culture however was not done. The serum of this patient agglutinated *Bact. typhosum* to a dilution of 1 in 100 but also agglutinated the *Vibriothrix zeylanica*. As the latter organism was not agglutinated by sera of other cases of typhoid, nor by plague and normal sera, it is concluded that in this particular instance the vibriothrix had acted not merely as an ancillary intestinal organism, but had passed the barrier of the intestinal mucosa.

W. F. Harvey.

Ridder. Balantidium-Colitis. (Beitrag zur Diagnose und Therapie sporadischer "Ruhr"-Fälle.) [**Balantidial Colitis.**]—*Muench. Med. Woch.* 1931. Feb. 13. Vol. 78. No. 7. pp. 268–269. [14 refs.] [Bethel Hosp., Bückeburg.]

Report of a case of chronic mucosanguineous diarrhoea. Stool examination revealed *Balantidium coli* and apparent complete cure followed on emetine therapy.

H. M. H.

Blondin (P.) & Assali (J.). A propos d'un abcès du foie chez un Sénégalais.—*Bull. Soc. Path. Exot.* 1931. Feb. 11. Vol. 24. No. 2. pp. 155–157.

Bressot (E.). L'hépatite suppurée amibienne du lobe gauche.—*Presse Méd.* 1930. Dec. 27. Vol. 38. No. 104. pp. 1793–1794.

Brunelli (Piero). Su di un caso di cistite amebica da *Entamoeba histolytica*.—*Arch. Ital. Sci. Med. Colon.* 1931. Apr. 1. Vol. 12. No. 4. pp. 218–222. With 1 text fig. English summary (5 lines).

Drake-Brockman (R. E.). Amoebic Hepatitis with Haematemesis.—*Brit. Med. Jl.* 1931. Mar. 14. pp. 444–445.

Gerbasi (M.). Le correnti d'azione del cuore nei bambini affetti da amebiasi.—*Pediatria.* 1931. May 15. Vol. 39. No. 10. pp. 513–525. With 4 text figs. [4 refs.] [Inst. of Clin. Pediatrics, Univ., Palermo.]

Innes (F.). A Clinical Survey of Bacillary Dysentery.—*Jl. Assoc. Med. Women in India.* 1931. Feb. Vol. 19. No. 1. pp. 21–30.

Maeji (Yukiyasu). Beitrag zur Therapie der Amoebenruhr mit Rivanol.—*Acta Scholae Med. Univ. Imperialis in Kioto.* 1931. Vol. 13. No. 4. pp. 404–408. [2nd Med. Clinic, Imperial Univ., Kyoto.]

Patriarca (Mario). Fattore di contagio in un caso di amebiasi intestinale.—*Ann. d'Igiene.* 1930. Aug. Vol. 40. No. 8. pp. 604–606.

Penso (Giuseppe). Sulla patogenicità del "Balantidium coli."—*Policlinico.* Sez. Prat. 1931. Feb. 23. Vol. 38. No. 8. pp. 255–261. With 15 text figs. [Inst. of Med. Parasit., Univ., Rome.]

Penso (Giuseppe). Sulla patogenicità dell' entamoeba coli.—*Riforma Med.* 1931. Apr. 20. Vol. 47. No. 16. pp. 601–602, 605. [15 refs.]

Petridis (Pavlos). Le traitement chirurgical de la dysenterie et de ses complications locales.—*Jl. Egyptian Med. Assoc.* 1931. Jan., Feb. & Mar. Vol. 14. Nos. 1, 2 & 3. pp. 27–39; 94–117; 167–189. [Refs. in footnotes.]

Petzetakis (M.). La dysenterie amibienne en Grèce. Abcès amibien du foie ouvert dans les bronches, méconnu pendant dix mois. Guérison rapide par les injections intraveineuses d'émétine et le stovarsol.—*Bull. et Mém. Soc. Méd. Hôpit. de Paris.* 1931. Feb. 23. Year 47. 3rd Ser. No. 6. pp. 256–261. With 2 text figs. [1 ref.]

Quenardel & Kimsan. Observations cliniques d'abcès du foie guéris par le traitement médical.—*Bull. Soc. Méd.-Chirurg. Indochine.* 1930. Dec. Vol. 8. No. 12. pp. 1014–1019.

da Rocha (Martinho). Um caso de dysenteria typo Sonne com invaginação intestinal.—*Brasil-Med.* 1931. May 30. Vol. 45. No. 22. pp. 491–494. With 3 text figs. [5 refs.]

Sabrazès (J.). L'amibiase, d'après le Docteur Vendeuvre.—*Gaz. hebd. Sci. Méd. de Bordeaux.* 1931. Apr. 19. Vol. 52. No. 16. pp. 241–244.

Sanguinetti (Lucio V.). Tumor inflamatorio del colon de origen amebiano.—*Arch. Argentinos Enferm. Aparato Digest. y Nutric.* Buenos Aires. 1931. Feb.-Mar. Vol. 6. No. 3. pp. 558–567. With 3 text figs. [12 refs.]

Serio (F.). In tema di cura medica dell'epatite amebica colliquata.—*Policlinico.* Sez. Prat. 1931. May 18. Vol. 38. No. 20. pp. 701–702. [Med. Clinic, Univ., Palermo.]

Tournier. Le traitement de la dysenterie amibienne.—*Ann. de Méd. et de Pharm. Colon.* 1930. Oct.-Nov.-Dec. Vol. 28. No. 4. pp. 557–586. [Refs. in footnotes.]

Vaccarezza (Raúl F.). Sobre un caso de amibosis pulmonar.—*Prensa Méd. Argentina.* 1931. Apr. 20. Vol. 17. No. 32. pp. 1584–1591. With 2 text figs.

Valerio (Americo). Considerações clinicas sobre as dysenterias amebicas.—*Folha Med.* 1931. Apr. 25. Vol. 12. No. 12. p. 133.

HISTORICAL.

VAN ANDEL (M. A.). Geneeskunde en hygiëne op de slavenschepen in den compagnietijd. [**Medicine and Hygiene in the Slave Ships in the Time of the West India Company.**]—*Nederl. Tijdschr. v. Geneesk.* 1931. Feb. 7. 75th Year. 1st Half. No. 6. pp. 614–637. With 3 figs. on 1 folding plate. [30 refs.]

The days of old-time slavery and even of sailing ships and scurvy may be considered as well-nigh departed, but the account here given of the conditions of the sea-borne slave trade in the 17th and 18th centuries serves to remind us of what may almost be regarded as the beginnings of organized tropical medicine and hygiene.

Any history of the introduction of disease must of necessity give due weight to the medical accounts of the trade in slaves. A far reaching charter of trading rights was given in 1621 by the States General of Holland to the West India Company and the slave trade to America from Africa was one of the most important activities of this company. Early Portuguese and Spanish settlements found it impossible to utilize the original inhabitants of their colonies for the heavy pioneer work on the land. Labour was obtained from Africa, largely through the agency of the Dutch West India Company, and so the slave trade arose. Between 1637 and 1649 the negroes so brought into Brazil were 12,163 at a cost of 7 million florins. According to GALLANDAT, who held the title of *Lector anatomiae, chirurgiae et artis obstetricae* at Flushing and who was the author of a work on "The Requirements of the Slave Trade," there were years in which 70,000 slaves were exported from Africa to America. A slave, according to BOSMAN, who for purchase, maintenance and transport cost 200 florins, realized by sale something like 800 to 1,000 florins. The profits were large, but were, for reasons set out in this article, speculative. The speculative elements were represented by the weather, mortality and sickness, which could reduce profits on such a perishable cargo to zero. Thus dietary, hygiene and prevention of disease among the slaves became very important considerations to the slave trader.

The first purchase transaction was supremely important. An older man or woman might by artifice be palmed off as a younger one. "No coquette" says GALLANDAT, "is so concerned to dress herself up as is the slave dealer his old slaves. Their toilet is carefully made: grey hairs are removed from hair and beard and they receive abundance to eat and drink." A company surgeon was deputed to examine slaves, men and women stripped naked, and to discover the existence of physical defects such as cataract, hernia and prolapsus uteri. Diseases which are specially mentioned are dysentery, small pox, fevers, guinea worm, elephantiasis, yaws, venereal disease and chronic malaria. After the health inspection was over and sick or disabled slaves had been rejected, those chosen were branded on the shoulder with the mark of the purchaser. Now came the sea journey, which might even last for half a year. This journey in the 17th and 18th century was a serious undertaking even for war ships and merchant ships, but very much more so for a ship with a cargo of slaves. The insurance premium on the cargo amounted to 3 per cent. against natural, wilful or violent death, but the insurance money was only payable in the event of the mortality exceeding 15 per cent. Overcrowding was very common, even though traders were well aware of the danger of such procedure. A ship of 25 metres length and 8 metres width, with a slave room under

the deck of 1·70 to 1·80 metres height was reckoned on for a cargo of 300 slaves. It might even be that the sleeping accommodation, for all its low height, was arranged with two tiers of boards. Ventilation of the slave quarters was one of the great difficulties of the ship master. Every endeavour was made to get the slaves on deck daily in order that their quarters should be ventilated and that they should have the opportunity of washing, exercising and even of recreation in the shape of dancing to the music of the drum.

Commissariat arrangements for a population of the kind here concerned were naturally of the highest importance. A list of food and other stuffs for 400 slaves from Guinea to Curaçao is set down as 1,800 pounds pork, 800 pounds hard bread, 320 sacks groats, 160 sacks beans, 300 pounds tamarinds, 5 half measures corn spirit, 2 half measures French brandy, 3 hogsheads vinegar, one barrel tobacco and 12 gross tobacco pipes. Fresh fruit, fresh fish and fresh meat were taken in whenever the opportunity offered, for the dread of scurvy was a very real one. Thus a slave ship in 1668 filled up with 900 oranges, 5,000 lemons, cocoanuts, pineapples, 90 fowls and 2 goats and all this provender was obtained for the modest sum of 16 florins. The question of water supply was almost as important as that of food. According to GALLANDAT the water obtainable on the Guinea coast was apt to cause diarrhoea, dysentery and infection with guinea worm. It would be well, says he, always to boil the water but this is impossible except perhaps for the sick. The addition of some drops of vitriol or vinegar to the water is recommended as a preventive of disease carrying properties.

Actual mortality amongst the slaves affords a good test of the effectiveness of the hygiene precautions taken in this trade. We read here of a voyage from Madagascar to Sumatra lasting from 1st September to 6th February with death of 139 slaves out of a total of 236 and the further death within four months of more than half of the remainder. The other extreme is given of a cargo of 425 slaves arriving in Surinam with only 6 deaths on the voyage. In the rules of conduct laid down for skippers it was enjoined that the sick should always be separated from the sound but this seems to have often been more of a rule than a reality. The records of the slave trade are fairly detailed on the subject of preventive measures against disease, but are not explicit on treatment. Quarantine arrangements, especially against smallpox, were seemingly strict, as a result of bitter experience. In Surinam, slave ships were visited by the surgeon major who reported to the Governor and only then, if the report was favourable, was permission for disembarkation given. In the case of infective disease being present on board, the ship had to remain outside until it was over.

These are some of the subjects touched on in this article. Slave traders were not philanthropists. Their measures of hygiene especially, which read uncommonly sound, were dictated solely by considerations of the immediate financial loss produced by sickness and death.

W. F. Harvey.

STITT (E. R.). **Our Disease Inheritance from Slavery.**— *U.S. Nav. Med. Bull.* 1928. Oct. Vol. 26. No. 4. pp. 801–817.

The Surgeon General of the United States Navy gives an interesting account of the diseases believed to have been introduced into North

America with the African slaves. He discusses at the outset the diseases found among the Indians on the arrival of the European colonists. Tuberculosis did not exist among them; in this all authorities seem to be agreed and a long quotation as to the rarity or absence of the disease is given from HRDLIČKA. The whites introduced measles and scarlet fever, and smallpox "which did more to decimate the aborigines of the New World than all other diseases and warfare combined." The author believes that the mild type of smallpox, the so-called alastrim, was introduced by the slaves and the virulent strain, of Eastern origin, came in with the settlers. According to THOMSON the practice of inoculation was known in Africa from remotest times.

Among diseases probably introduced from Africa he names blackwater fever and subtertian malaria. Dysentery was common among the slaves and he cites WINTERBOTTOM: "Out of the cargoes of several ships consisting of 600 or 700 slaves each, dysentery killed 250 on one ship, 220 on another, 150 on a third, 60 on a fourth and 82 on the fifth one of the squadron"; it appears to have been bacillary rather than amoebic.

It seems well established that hookworm was introduced with the slaves; the author found frequent references to it in old slave records under the designations, mal d'estomac, malacia, dirt-eating disease. Sleeping sickness was of course introduced by the Africans but owing to the absence of its vector did not spread. The focus of leprosy near New Orleans is probably of African origin, but that the United States is not a favourable habitat for this disease was shown by HANSEN who among the descendants of 160 known Norwegian lepers in the North-Western States could not find a single infected person.

Filariasis was introduced by the slaves into the Southern States, but has disappeared except from Charleston, S.C. where *F. bancrofti* is found. FRANCIS suggested that a large ship-load of heavily infected slaves reached this port and the slaves were retained there for a sufficient time to provide a permanent focus.

The author discusses yaws at some length and expresses surprise that a disease so often introduced into the Southern States never became established there. He quotes from SYDENHAM who attributed the syphilis of Europe to the importation of yaws from the coast of Guinea. Yellow fever the author believes came to America from Africa rather than in the reverse direction. His conclusions are as follows:

"Summing up the probabilities of disease importation into our Southern States by African slaves we would seem justified in assuming that the malignant tertian malaria and its associated blackwater fever came from West Africa, where both of these diseases prevail extensively. Blackwater fever certainly was not brought in by the European colonists.

"Bacillary dysentery was one of the scourges of the slave ships and was undoubtedly introduced into the colonies. The evidence I have been able to find as to the bringing in of amoebic dysentery is negative.

"The restricted endemic area of filariasis in Charleston, S.C., offers an interesting epidemiological study. This disease, with its accompanying elephantiasis, was recognized in the West Indies as of African importation.

"The Guinea worm was undoubtedly introduced into the American colonies, but failed to secure a suitable host. In the West Indies, however, it succeeded in establishing itself for a time, but later disappeared.

"There can be no doubt that hookworm disease came in with the slaves. It would seem probable, in view of the assigning of the introduction of leprosy into the West Indian colonies to the slaves, that the endemic area of leprosy in the southern United States had a similar origin.

" Neither the parasites of African sleeping sickness nor rectal bilharziasis seem to have secured a foothold in the United States, although the latter exists in certain West Indian islands. In the body of my paper I have dealt rather fully with the question of the introduction of yaws into the New World by the slaves. What became of this serious infection, which must have been brought into the American colonies, just as it was into the West Indian islands ? Is the identity of syphilis and yaws the answer ?

" If, as I am convinced, yellow fever was introduced through slave ships into the United States by infected mosquitoes (which Stokes has recently shown can transmit the disease after three months) we have here a curse greater than any of the curses which the Egyptians suffered through their enslavement of the Jews."

A. G. B.

VAN DER HOEVEN (J.). E. K. Rodschied, een West-Indisch tropenarts uit het einde der 18de eeuw. [**E. K. Rodschied, a Practitioner in the West Indies of the 18th Century.**]—*Nederl. Tijdschr. v. Geneesk.* 1929. Mar. 2. 72nd Year. 1st Half. No. 9. pp. 1101–1107.

The history of medical science, as of science in general, is very largely a record of the sayings and doings of prominent individuals. It is very instructive therefore to go back to the olden times through the medium of the published works of those who lived in them and learn something of the genesis of our present ideals. Dr. RODSCHIED'S work " Medical and Surgical Notes on the Climate, the Mode of life and Diseases of the Inhabitants of the Dutch Colony Rio Essequibo "* was published in Frankfort in 1796. In the present article, largely culled from this work, we are presented with a picture of life and the state of medical science in the Dutch settlements in Guiana at the end of the 18th century. The slave trade was at its height. Only imported labour would serve for the development of the new colonies. In this latter respect a parallel is afforded to the conditions obtaining in Dutch Sumatra only 30 or 40 years ago. The conditions in Dutch Guiana were very primitive, and the population a very conglomerate one. Hard drinking was the rule and indeed the use of spirits was advocated to render the miasmata harmless and to dull the pain of mosquito bites. An improvement is registered with the replacement of rum for gin, which represented a much more dilute form of alcohol. Most of the lessons to be extracted from RODSCHIED'S commentaries have reference to the treatment of slaves. Those were early days to find recognition of the identity of interests of employer and employed, but RODSCHIED himself realized that economy of working costs lay in the preservation of the lives of the workers. A slave was not cheaply procured, but what seemed to please the average planter most was the cheapness of his contract for medical attendance. The doctor of the time was still merely a barber-surgeon, although he was absolved from the duty of shaving the slave population of the estate.

Doctor RODSCHIED himself stands head and shoulders above the medical practitioners of the ship doctor type. He had studied both the healing sciences in Marburg, and realized with much prescience what was required in the way of hospital, food and water provision for the costly slave population. Not less than 50 slaves were required to work a plantation and, at 250 florins apiece, they represented what was a very large capital outlay for those days. The planter took very great

* Now part of British Guiana.

pains over his initial purchase, even if he did not take as good care of it afterwards as he should. The slaves were paraded for sale and were very thoroughly examined by their prospective masters who made certain that they bought no "pig in a poke." Their arms, their legs, their teeth and their hair were all inspected and their movements also. It was therefore all the more extraordinary that no glimmerings of sanitary science seemed to illuminate the provisions made for upkeep of the human live stock of plantations. Everything was left to providence and the climate blamed for all sickness and mortality. Slaves were required to work for 12 hours a day. Their food for the week was a bunch of bananas, 1½ 2 lbs. salt meat and 2 or 3 tots of rum. For the rest they were at liberty in their free time and on Sundays to cultivate cassava, potatoes and other vegetables, to rear fowls and ducks or to bring some variation into their diet by fishing or by catching crabs.

Doctor Rodschied likewise points out that admission to the hospitals often meant exacerbation of sickness instead of cure. And how could it be otherwise with hospitals like prisons, without windows, with insufficient provision against heat, built on swampy ground, with the floor for bed and without separate accommodation for the sexes or for special diseases. How could patients suffering from such diseases as dysentery, worms, etc., contracted through drinking impure water, be expected to recover when they were supplied with the same impure water in hospital? In times of drought especially the negro slaves were hard put to it for water. The natural water was brackish, while springs and wells did not exist. The food, too, of patients was quite unsuitable and consisted chiefly of bananas. It should have been within the power of the doctor to prescribe rice, meal, vegetables, bread, wine and meat: these are in reality medicines, often better than kino, calomel and opium.

Much that was proclaimed by Rodschied was not fully realized for a century later. He was a pioneer sanitarian in times that were not yet ripe for improvement. Although he was convinced of the obligation of the planter to improve the living and housing conditions of his slaves he had no mercy for the erring labourer who produced festering sores upon himself in order to escape work. He approved of the treatment in such a case, where the man was confined in darkness and bound hand and foot in the stocks. In this respect he was no more than "a child of his time."

Much more of interest to us of the present day could be extracted from the writings of this tropical hygienist. He calls attention for instance to the difficulties of diagnosis of disease in tropical climates, where the affection often takes a different form from that observed in the temperate zone and where the darkness of the skin of the patient hides many familiar manifestations. One disease in particular is singled out by the author of the article for comment, in which pronounced symptoms were abnormal hunger and an unnatural craving satisfied by the eating of earth. Death is the inevitable ending and is due to non recognition of the fact that the negro has become sick of life and more or less commits suicide, happy in the belief that when he rises again it will be in his own fatherland.

This survey of life in the 18th century serves to place before us a vivid picture of the conditions which have been replaced by our present sanitary modes and our present humane treatment of our fellow beings. The good old times were full of adventure no doubt, but were also times of disabling sickness and high mortality.

W. F. Harvey.

Parsons (Robert P.). **History of Haitian Medicine.**—*Ann. Med. History.* 1929. May. Vol. 1. No. 3. pp. 291–324. With 8 text figs. [21 refs.]

Haitian medicine, we are told, falls logically into three principal periods: the French Colonial period, 17th and 18th centuries; the independent period, 1804 to 1915; and the period of American occupation. With the last we are not now concerned.

The history begins with the landing of Columbus at Mole St. Nicholas, a point of the island near to Cuba, in 1492, the exploitation by the Spanish, and the disappearance of the Caribs which was mainly due to smallpox. In 1503 the first African slaves arrived and by 1790 importations and increases by birth had brought the slave population to half a million. Butler writes: "It is reasonable to think that during 292 years of slave trade between 1512 and 1804 every type of disease that the continent of Africa might boast of had been brought to Haiti." Sydenham states that yaws came in the slave-ships from Africa; yaws was then the chief cause of damage to the slave-trade, and now in Haiti it probably is the occasion of greater economic loss than all other diseases combined.

The French settlement began with the arrival of the buccaneers about 1625. In the next hundred years the colony prospered, becoming the richest of French colonies, but there is little record of medical activity. Tetanus was a frequent cause of death especially among the new born of the slaves. A medical writer says: "If one exposes them to the air at the moment of birth they get a convulsion of the jaws which prevents them from nursing and from which they die." The slaves were for the most part treated for diseases by the witch doctors, but on the richer plantations there was usually a special building serving as hospital in charge of a negress. "Those not very sick were often chained to their beds lest their illness be too much of a holiday for them." Yaws was treated in the slave huts or in a special building, and increased fees were charged to the owners. A writer in 1752 described many cases of guinea-worm, which is not found in Haiti to-day "life outside the human host being evidently unsuitable." The author refers to the "strange disease" Mal de Siam, and discusses its possible nature. [There seems to be no doubt that this was yellow fever. Reference was made to it in this *Bulletin*, Vol. 23, p. 612 and an elucidatory footnote is here reproduced.]* Yellow fever is mentioned elsewhere and especially as virtually destroying the French army in Haiti in 1804. Other diseases named are leprosy and smallpox. Sleeping sickness is not recorded. Good work was done in those far-off times. M. de Loppinot was commended for sanitary work done in 1783. This officer "with very little means, accomplished much for the health of the inhabitants by filling

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* "So called because of the general belief in early colonial days that the disease had been imported from Siam. It is mentioned by Labat, Chevalon, Desportes, Moreau de Saint-Mery, and other chroniclers of the period and was known by this name in Martinique and San Domingo near the close of the seventeenth century. It is found designated by this name in the old Government and local records of these islands." Augustin. *History of Yellow Fever.* 1909. p. 79.

From further information in Augustin's book it appears that in consequence of an insurrection in Siam in 1688 a ship-of-war brought French settlers away and, driven out of its course by storms, reached Martinique, after having called (according to one account) at a Brazilian port. In any case, over 100 persons died of *Typhus mismatique ataxique putride jaune*, the unhandy name by which yellow fever was then known to the French.—Ed.

in low areas which spread infected emanations into the air." This period came to an end with the slaves' revolt in 1793, Napoleon's despatch of an army and its final defeat, chiefly by yellow fever, in 1803–4.

" When independence arrived progress ceased." There was an almost continuous decline in civilization until 1915. An account is given of the efforts of a few European doctors to improve the knowledge of medicine and surgery, but these were brought to nought by political intrigues.

In 1915 the American occupation began, and in reference to this the author says—" The negro has shown astonishing capabilities in many fields of human endeavour, not the least of which is in medicine. . . . Whether this will continue after the American occupation has withdrawn remains to be seen."

A. G. B.

Storrs (R.). **The White Man's Grave in the Eighteenth Centu y.**—*Jl. Roy. Army Med Corps.* 1929. Sept. Vol. 53. No. 3. pp. 226–230.

An extract with comments from a book entitled " Travels in Africa in the years 1785 to 1787 " by a Frenchman, Monsieur Colbery. The diseases described are malignant nervous fever (" thus called by the English "), dysentery, dry belly-ache,* tetanos, guinea-worm. These are the " five complaints which attack Europeans in the countries dependant on the Senegal government." A high tribute is paid to the knowledge and devotion of the English doctors.

A. G. B.

Johnston-Saint (P.). **An Outline of the History of Medicine in India.**—*Jl. Roy. Soc. Arts.* 1929. July 12. Vol. 77. No. 3999. pp. 844–869. With 7 figs. [45 refs.]

This contains the George Birdwood Memorial Lecture delivered in the Indian Section of the Royal Society of Arts on May 10th 1929. Captain Johnston-Saint is not a medical man, but had spent six years in India and studied the history of the country generally. The author begins with a reference to Dr. Gabriel Boughton and the reward he received for successful treatment of several members of the household of Shah Jehan. There were other instances of the value of western medicine. After a long dissertation concerning western ignorance of Indian history, languages, medicine, etc., we come to the dawn of history in India and the beginning of Hindu literature, known as the Vedas which date back to 2000 B.C. and may possibly be older. The self-created Brahma, having for the guidance of the universe written the four Vedas including the Atharva Veda, communicated them to other gods, the two Aswins or sons of the sun becoming the custodians of the Atharva Veda and the medical attendants of the hierarchy of heaven. Then taking compassion on the sickness and suffering of mankind, the gods produced the Ayur-Veda which was a treatise of the science of life. Dhauwantari the Aesculapius of India came to earth to instruct mankind and received a deputation from the sages among

* Col. F. Smith (*Jl. R.A.M.C.*, 1929, November) writes that dry belly-ache was lead colic, which prevailed in places where beverages, such as rum, were stored in leaden vessels or in containers having leaden pipes.

whom was Susruta the founder of Hindu surgery and author of the "Susruta Samhita." The so-called father of Hindu medicine was Charakha and he too wrote a book: "Charakha Samhita." We thus pass from myth to something more real, and the lecture carries on the tale of the teaching derived from Dhauwantari and his pupils. Two illustrations from the Wellcome Historical Medicine Museum, show Dhauwantari in fanciful surroundings. From the Ayur-Veda, of which the lecturer gives a brief account came the Ayurvedic system of medicine, which is followed in India at the present time, and he writes of the work of Susruta and Charakha (with reference to sources of information). Notwithstanding blemishes obvious to modern intelligence, the evidence of knowledge is remarkable at such an early date. The lecture continues with sections on instrumental surgery and Hindu ideas of anatomy. In 1836 when English surgery was first taught in India, only ten students in the whole of the peninsula would even consider the prospect of dissections and even then the high walls of the dissecting room had to be guarded by police, so strong was local feeling. Indeed, the nineteenth century brought knowledge of western surgery and medicine to India, which knowledge has been accepted and borne fruit although the ancient ignorance and practice still exist. Some very interesting illustrations are given of ancient Indian surgical instruments compared with modern instruments used for similar purposes. The materia medica of the Hindus is described as a marvel and in it we find a multitude of drugs belonging to the animal, vegetable and mineral kingdoms. Anyone interested in these matters might with advantage read "The Materia Medica of the Hindus" by Udoy Chaud Dutt. The hands of the Hindu surgeon were fettered and bound by Brahmin ritual and by the coming of Buddhism which practically prohibited the use of the knife. With the coming of Moslem conquerors the fall of Hindu medicine became rapid, and while Moslem Hakims flourished under princely protection, the Hindu Vaidyans held only the lowly offices of spell-makers to the poor. With the coming of Europeans—Portuguese, Dutch, French and English there came new methods, new teaching and a new outlook; but in spite of all, the old methods and beliefs remain in some degree all over India.

J. H. Tull Walsh.

de Mello (Froilano). **History of Medicine in Portuguese India.**—*Arquivos da Escola Méd.-Cirurg. de Nova Goa.* Ser. B. 1930. No. 3. pp. 723–730.

After quoting early descriptions by Portuguese doctors of scurvy (1498) and cholera (1542) the author gives an account of the efforts made to diffuse medical science among the natives of Goa. Attempts made in 1687 and 1691 proved abortive, and it was not till 1801 that a professor of the Faculty of Coimbra, A. J. Miranda e Almeida, arrived in Goa and founded a School of Medicine and Surgery, comprising a three years' course taught by himself. In 1821 the course became one of four years: and in 1842 the present Escola Médico-Cirurgica emerged: it is interesting to notice that one of the subjects for the fourth year was History of Medicine. In 1865 the course was extended to 5 years. Since the creation of the School, 616 doctors and 231 pharmacists have been licensed.

A. G. B.

Gracias (J. B. Amâncio). Notas para a história de Medicina em Goa. [**Notes on the History of Medicine in Goa.**]—*Arquivos da Escola Méd.-Cirurg. de Nova Goa.* 1927. Ser. A. pp. 217–218. French summary p. 218.

The author finding in the archives of the local Treasury unpublished documents on the nomination of Carlos Eloy Bosse (1798) as assistant surgeon to the military hospital at Goa, seeks information about his nationality.

A. G. B.

Olpp (G.). Tropenärzte in Wort und Bild. [**Tropical Physicians in Pen and Portrait.**]—*Beihefte z. Arch. f. Schiffs- u. Trop.-Hyg.* 1929. Vol. 33. No. 3. pp. 243–248 (327–332). [9 refs.]

An interesting lecture in which some account is given of men whose discoveries have advanced tropical medicine, e.g., Aloys Pollender, Johann Wilhelm Meigen, Theodor Bilharz, Wilhelm Griesinger, Walter Reed and his colleagues, the recent victims of yellow fever on the Gold Coast, and lastly Wilhelm Röhl, described as the discoverer of plasmochin and germanin. It will be observed that they are chiefly names that would appeal especially to a German audience. Portraits of these and others were shown.

A. G. B.

Celli-Fraentzel (Anna). Comment la Gaule, civilisée par Rome, se dévoua à l'assainissement de Rome, au moyen âge et dans les temps modernes. [**How Gaul, Civilized by Rome, devoted Herself to the Assanitation of Rome in Mediaeval and Modern Times.**]—*Arch. Inst. Pasteur d'Algérie.* 1929. Sept.-Dec. Vol. 7. No. 3–4. pp. 239–286. With 1 map & 33 figs. on 29 plates. [Refs. in footnotes.]

This learned, well illustrated, and well-documented memoir is a story of the malaria-stricken wastes of the Roman coast. History in her obscure passage through the Dark Ages that immediately followed the subversion of Roman civilization by Goth and Vandal and Hun has been too much distracted by that catastrophe to preserve much information about those wastes. We know that in the course of those Dark Ages what had once been a fertile and healthful enough tract became a pestilential fenland; but whether the transformation was originally due to one of those periodic changes in local distribution of land and water that may anywhere occur in estuarine and delta country, or was the direct result of the ruin and devastation worked in southern Italy by Alaric and his West Goths in A.D. 410, are questions not easy to answer. Madame Celli seems to favour the opinion—which many people regard as an obvious *petitio principii*—that in one and the same natural region periodic variations in standards of salubrity have been the result of a periodic rise and fall in the intensity of malarial infection. Her theme, however, is not the causes of the transformation, but the persistent efforts carried on through the centuries to reclaim the pestilential waste for the use and enjoyment of man again. In these efforts France has throughout played a nobly-inspired and well-conceived part, and this memoir may be described as an invocation of the

Muses of History and of Epic song to commemorate the Frenchmen who have counted life well spent, even to the point of sacrifice, in the attempt.

History begins to speak in the letters of the Gaul RUTILIUS NAMATIANUS, a prefect of the City, who returned to Rome six years after the third sack by Alaric in 410; he tells of the City as preserving its majesty in spite of indescribable damage, but of the countryside desolated and impassable, and of the existence of some marshy places at the mouth of the Tiber, but without any mention of unhealthiness; indeed, he was held-up there for fifteen days by contrary winds and came ashore to sleep every night in the open air, without distress, and this in the aestivo-autumnal season. Sixty years after this, SIDOINUS APOLLINARIUS of Lyon describes the region as "pestilential," and himself as there destroyed body and soul by "fever" and thirst. A few years later GREGORY of Tours (died circ. 594) "the first of the French historians," writes of the floods of the Tiber and their fatal consequences. And then, 700 years after RUTILIUS, comes HILDEBERT, also from Tours, with mournful strains of broken Roman pride, and temples lying in the marsh.

Nearly 200 years before Hildebert, in the year 936, there came to Rome from Clugny or Cluny in Burgundy Abbot ODO, a Benedictine of the reformed Cluniac Order. As is well known, the Cluniac offshoot of the Benedictines was founded with and in the monastery of Clugny and was based on a return to the simple rule and the strictly-disciplined self-effacing life which all ages have regarded as the ideal of the cloister. But with the monks of Cluny organized labour in a good vocation was as imperative as religious discipline and assiduous ritual—both were equally service dedicated to God. The primeval vocation for man is to till the ground from whence he came, and before all things the monks of Cluny were husbandmen; so under the auspices of Abbot ODO they came to Rome in the dawn of the Middle Ages and settled to work on the surrounding waste, substituting regulated intensive culture for the laxity of large estates and long leases. Their valiant enterprise was heartily approved by the ruling Roman king, ALBERIC II, who made over to them five abandoned monasteries without-the-walls (which otherwise might have become the dens of brigands) and so their work began. The author sketches their rural organization. Each monastery with its church and its accretions of immigrant lay-workers became a village, perhaps walled, and a sanctuary for all who were oppressed. Under the Prior, and usually chosen by the Abbot from among these immigrant lay-workers, was a "Major" or headman to supervise these workers in the fields and the collection and delivery of their harvest to the Prior. In the more distant intervening country each large monastery had its girdle of subordinate monasterioles or "cellae." The zealous ODO died of "fever," in 942, contracted during his last visit to Rome, and the author does not tell us how long the excellent Cluniac administration of the Campagna and Pontine Marshes persisted. She is certain, however, that no visible ruins of their work, such as still exist in other countries, are extant, and she thinks it probable that in the course of time the magnanimous effort of the monks of Cluny was frustrated by malarial fever.

A century-and-a-half after Abbot ODO French Monks of the Cistercian Order, under the papal aegis, took on the work. The Cistercians, as is well known, were another, later, reforming offshoot from the Benedictines, established at Citeaux (*Cistercium*), near Dijon, in Burgundy.

Even more than the monks of Cluny were the Cistercians in their beginnings, intent on subjugating the unruly nature within and the wild and uncultivated nature without. Their abbeys and monastic buildings were usually set in lonely valleys far from the haunts of men, where they cleared and cultivated the land like disciplined Roman legionaries in permanent encampment, the monks working in the field with the lay-brothers, and the abbot himself lending a helping hand at hay-time and harvest. Their organization for work was like that of the Cluniac monks; they had their abbey churches and adjoined monastic buildings, and around each a circle of subordinate monasterioles or "granges" chiefly for monks experienced in agriculture. In the time of the famous St. Bernard (1091-1153) Abbot of Clairvaulx, the Cistercians came from France to Italy, where they were welcomed by popes and bishops and were given settlements in the Campagna and Pontine Marshes (and in other notoriously unhealthy places). The author tells the names, with the particular benefactions, of the popes who stood by them during the 12th century, with special appreciation of the popes Calixtus II and Innocent III, and also of Hugo, bishop of Velletri, who gave them the monastery of Marmassola in the Pontine Marshes, which remained a centre of activity until the early years of the 14th century. Not a few of the Cistercian abbeys and monastic buildings still remain to commemorate these self-sacrificing monks; among these the abbey of Three Fountains, near Rome (gift of pope Innocent II) and the monastery of Fossanova in the Pontine Marshes, are still regarded as good examples of Early Gothic architecture. Of Three Fountains we hear again, but in the interval we follow the author's account of French testimony to the alternating prosperity and decadence of the Roman Campagna as a result of variations in the incidence of malaria.

Rutilius Namatianus has already been cited as a responsible official witness to the existence of harmless marshy places in the Tiber delta in A.D.416, and then Sidoinus, another official, sixty years later, reports himself a sufferer from fever and pestilential air. Afterwards from the 6th to the 8th centuries there are Gregory and Hildebert of Tours and Frodoard of Reims writing openly of the baneful consequences of inundations of the Tiber. Writers of more recent times repeat the sad tale of decadence, sterility, depopulation, and fever of the Roman Campagna as if it were even then notorious. Among writers of distinction are, in the 16th century, Montaigne; in the 17th century, Touvier; in the 18th century, the Dominican Friar Labat, the Franciscan Jacquier of high authority, Cardinal Lattier; and Montesquieu who noticed the concurrence of insects and sickly vapours in summer. Among the many writers in the 19th century we may select Chateaubriand, who, while giving a wonderful picture of the utter desolation and woe of the Campagna, cynically assigns it to the popes as a deliberately devised foil to the splendour of the Eternal City; Dureau de la Malle, who reviewed the history of malaria in the Campagna; Berthier, particularly recommended for his *Chronique du Monastère de Saint Sixte et de Saint Dominique*; and the papers by de la Blanchère published in the first years of the *Melanges de l'Ecole Française de Rome*. [References to these and many other works cited by the author are to be found in footnotes.] Eight pages, not of such pointed interest as those on the self-effacing monks, are given to "the heroes and victims of the climate of Rome and its Campagna."

We are not left to suppose that after the ruin of the monastery of Marmassola in the early years of the 14th century and the frustration of the hopes of the devoted Cistercians the sullen marshes of the Roman littoral were left entirely to the attention of curious explorers and chroniclers and the Muse of Tragedy. At Ostia in the latter half of the 15th century a French prelate, Cardinal D'ESTOUTEVILLE, "effected important works of reclamation." In the middle of the 18th century the abbé RICHARD was busy with various plans for the cultivation and repopulation of the Campagna. Moreover many of their sanctuaries and monastic buildings have out-lasted the Cistercians even to the present day—(and are here depicted). Among them is the Abbey and Monastery of the Three Fountains already mentioned, which was the first gift of the papacy (INNOCENT II) to the Cistercians when they first set foot in the Holy City. This ancient sanctuary seems still to be well preserved, and in the middle of the 19th century it was the home of a small band of French Trappist monks in a desperate attempt to drain and colonize the country around it. Many of these monks died of malignant fever, and after 1870 the survivors, all in broken health, had to give up and forsake the attempt.

So, from the monks of Cluny at the end of the 10th century and the Cistercians in the middle of the 12th century to the Trappists of the middle of the 19th century, "France has not ceased to send a succession of colonists to spend their energy upon the pestilential territory of Rome"; and for these missionary efforts in the Middle Ages Madame Celli thinks that the names of ST. ODO abbot of Cluny, ST. BERNARD the famous abbot of Clairvaulx, and Pope CALIXTUS "deserve to be inscribed in letters of gold" in the scroll of History.

Leaving the devoted labours of the monks, and the interesting records of the chroniclers, we come, finally, to schemes and attempts of comparatively modern times and inspired not by religious zeal but by enterprising French engineers or by French capital. The author mentions Claude BAYON and engineers LINOTTE and FROYER, who between 1824 and 1856 did some ameliorative work at Ostia and made projects for more, and LITTARD who in 1828 proposed to drain and repopulate the Roman Campagna but at a cost that was prohibitive. But before all these the Emperor NAPOLEON in 1810 had expressed his anxiety to have the causes of the decadence of the Campagna investigated and remedied.

In reviewing the great schemes of Napoleon the author draws on the *Études statistiques sur Rome et la partie occidentale des États romains* of Count TOURNON (Paris, 1831) where its comprehensive character is revealed. The record of this magnificent enterprise is as follows: In Rome a lake near the Villa Borghese was drained, stagnant waters around the Forum were led away by reopening the Cloaca Maxima, and the construction of a series of quays along the Tiber for protection against flooding, at a cost of 4 or 5 million francs, was projected. In the environs of the city half-a-million francs were given for plantations of tobacco, indigo, cotton and rice. In the Campagna orders were issued for the planting of trees along the roads, cultivation was extended, and merino sheep were introduced; but colonization was regarded with one auspicious and one dropping eye, since all the colonists of a party of Germans settled and housed there by the MATTEI family died in the course of one year. Substantial grants were made annually to Civita Vecchia, Porto d'Anzio, and Fiumicino. A great work of canalizing the Pontine Marshes was started, by which about a

fourth part of their area was recovered for agriculture ; and a project for draining the Maccarese was considered.

[This is a very interesting paper and valuable also for its ample bibliographic footnotes. The author does not think it necessary to remind us that St. Bernard is considered to have been the greatest man of his time in Christendom. He was not only the incarnation of rigid piety and inflexible determination, the moving spirit of a powerful reformation, and the man whose zeal roused Christian chivalry to the second Crusade, but he must also have been, more than a century before Friar Roger Bacon (and centuries before Shakespeare's good Duke in *As you like It*), a man of scientific insight. For it was St. Bernard who instructed an inquiring pupil to study Nature before everything—" you will find something far greater in the woods than you will in books ; stones and trees will teach you that which you will never learn from masters " were his words. Therefore we may be sure that it was no mere visionary zealot that set the French Cistercians to hard labour on the Roman swamps.

The reviewer would like to add that within a reasonable distance from York there are two singularly beautiful ruins, Fountains Abbey and the abbey of Rievaulx, that bear witness to the excellent taste of the Cistercians in their choice of a site alike fascinating and exempt from public haunt, and to their masterly attributes as architects and masons.] A. Alcock.

Celli-Fraentzel (Anna). La febbre palustre nella poesia. (Da Virgilio a D'Annunzio.) [**Malaria in Poetry.**]—Supplement to *Riv. di Malariologia.* 1930. Vol. 9. 33 pp. [63 refs.]

In this small pamphlet the author has collected a number of extracts referring to " paludal fever " under one term or another from Virgil to D'Annunzio. Virgil leads the way with " malattia estiva " taken from the Aeneid. Most of the poets are content to curse malaria as " la Febbre " and D'Annunzio writes of " Unica dea, la ' Febbre.' " It is called " cotidiana " by Terence and frequent allusions are made to the dreaded " terzana." The poets suffered from malaria and saw clearly the evil influence of the disease on their country and peoples ; an enemy to health and prosperity. In the earlier years they knew not the true cause, but they saw clearly that malaria was connected with swampy and undrained lands. They also grasped firmly the fact that drainage and cultivation of such areas diminished the amount and spread of " paludal fevers." The very names malaria and " paludism " come from Italy. The later poets quoted had learned the true cycle of causation and on page 32 we find Giovania Cena's poem : " Le Zanzara," the mosquito. J. H. Tull Walsh.

Ross (Ronald). **Two Ross-Manson Letters. [Prefatory Note dated Nov. 2, 1929, followed by two letters dated Secunderabad, Aug. 22 and 31, 1897, and an extract from the *Lancet*, Nov. 2, 1929, p. 927, reporting Dr. G. Carmichael Low's Presidential Address to the Royal Society of Tropical Medicine, October 18th, 1929.**]—12 pp. With 1 diagram. 1929. Putney Heath : Ross Institute & Hospital for Tropical Diseases.

Sir Ronald Ross tells us in " The Prefatory Note " that the correspondence with Manson, Laveran, Lord Lister and possibly some

others will shortly be published in full. In the meanwhile we get in this slim pamphlet—with a very long title—two letters written in 1897 to MANSON from Secunderabad. The first letter describes the finding of zygotes in the " brown " mosquitoes which were subsequently identified as *Anopheles*, probably *A. stephensi*. A portion of this letter, dated August 22nd, containing original drawings of malaria zygotes is given as a photograph (p. 6). Experiments with " brindled " mosquitoes (*Stegomyia*) are also described in which the zygotes were not found. The work done on August 23rd and 24th is included in the letter. From the second letter dated August 31st, we gather that specimens sent to MANSON had gone bad ; but Ross writes : " I really believe the problem is solved, though I don't like to say so. I look at my cells daily ; those of the fifth day have grown bigger than those of the fourth day : such bodies are not found normally among the elementary cells of the mosquito's stomach (which are alike in all species of course) they have as yet been found only in malariated mosquitoes ; above all they contain the characteristic pigment peculiar to the malaria bug."

These letters are of historical interest, but they do not reveal anything new, anything that has not been published by Sir Ronald Ross in his " Memoirs," " Studies on Malaria," " Researches on Malaria " (Nobel lecture Dec. 1902), etc.

The extract from the *Lancet* report of Dr. G. Carmichael LOW's Presidential Address is considered by Ross to be " probably the best brief account ever published in English of my Indian work."

J. H. Tull Walsh.

SEQUEIRA (James H.). **Alphonse Laveran and his Work.**—*Kenya & East African Med. Jl.* 1930. Feb. Vol. 6. No. 11. pp. 319–330. With 1 text fig. [8 refs.]

An interesting account of its distinguished subject with a reproduction of LAVERAN'S original drawings of malarial parasites.

A. G. B.

THOMPSON (C. J. S.). **The History and Lore of Cinchona.**—*Brit. Med. Jl.* 1928. Dec. 29. pp. 1188–1190. With 1 text fig.

A most interesting story beginning in legend, continuing with the discovery of cinchona bark at the beginning of the 17th century and its introduction to Europe by the Countess of Chinchon and ending with the isolation of its thirty alkaloids. It cannot be extracted, but attention may be drawn to a few points. It is said that the natives of South America were quite ignorant of the medicinal qualities of the bark and that it was never one of the medicines carried in the wallets of the native itinerant doctors (MARKHAM). However, when LEDGER obtained through a native servant some seeds of *Cinchona calisaya*, seeds which were the foundation of the great Javan industry, owing to the jealously of the natives he [?the servant] was so ill-treated that he died from the effects. Again at Loxa, near which town the first knowledge of the drug was obtained, the natives would rather die than have recourse to such a dangerous remedy (HUMBOLDT), while SPRUCE says it was difficult to persuade the people of Ecuador and Colombia that their red bark could be of any service beyond that of dyeing cloth. Quin-

quina, the author points out, means " bark of barks " which suggests that some special value was attached to it.

The later history of cinchona is bound up with the career of the apothecary Robert TALBOR (or TABOR) who was knighted by Charles II, and whose reputation was made by the use of his secret remedy, the active part of which was " Jesuit's powder " as the bark was then called. The formula published after his death showed that it consisted of an infusion of the bark in claret wine, macerated for many days, and a tincture in spirits of wine which is of " practically the same strength as the tincture of cinchona of the British Pharmacopoeia to-day." For this formula, not to be published till after TALBOR's death, Louis XIV gave 2,000 louis d'or and an annuity of 2,000 livres.

A. G. B.

DAWSON (W. T.). **Cinchona Alkaloids and Bark in Malaria.**—*Internat. Clin.* 1930. June. (40 ser.). Vol. 2. pp. 121–149. [63 refs.] Also in *Jl. Roy. Army Med. Corps.* 1931. Mar. Vol. 56. No. 3. pp. 178–201. [63 refs.]

The author has collected many interesting additional details of the well-known stories in the history of cinchona. The principle source of the bark is Java, where the Dutch have cultivated the beautiful, blossoming, ledgerian variety of an originally Bolivian tree, *Cinchona calisaya* (yellow bark), by grafting it upon the hardier *Cinchona succirubra* (red bark). The name " ledgeriana " commemorates Charles LEDGER, who, in 1865, shipped a packet of seeds from Peru to London. The seeds were obtained by Mr. Ledger's old servant, Manoel, who spent four years collecting them in the forest ; on his return to Bolivia he was so ill-treated, for having harmed the industry of the bark collectors, that he died. Mr. Ledger gave all that he obtained from the sale of the seeds, £100, to Manoel's widow. It is not known whether the Peruvians used cinchona bark, but in 1630 Don Lopez Canizares, the corregidor of Loxa, now a district of Ecuador, was cured of a fever by the bark, and in 1638, hearing of the illness of Ana de Osorio, wife of the Count of Chinchon, Viceroy of Peru, Canizares forwarded to the Palace at Lima, 600 miles distant, a parcel of the bark, which her physician, Don Juan DE VEGA, used to cure her tertian fever. The next year it was used in Spain. In 1670 the Jesuits forwarded some to Cardinal Joannes de Lugo in Rome, where it became known as " cardinal's bark." In Brussels and Antwerp it was called " Jesuits' powder," because the Jesuits gave it to the poor who suffered from quartan fever. They administered it as a powder, but a little later TALBOR discovered the virtues of an infusion of the bark in port wine, and Louis XIV purchased the secret of his specific at a large price. Cinchonine, the first of the alkaloids to be separated from the bark, was discovered in 1810 by GOMEZ, a Portuguese naval surgeon. PELLETIER and CAVENTOU isolated quinine in 1820.

The Government of the Madras Presidency was advised, in 1866, by Dr. SHAW, Medical Inspector General, to set up a commission to test the efficacy of cinchonidine, quinidine and cinchonine as cures for fevers, in order that it might be determined if it was worth while cultivating cinchona trees which were rich in them. The firm of Howards prepared the sulphates of these alkaloids, and also of quinine, for the purpose, and they were tested on between three and four thousand patients, with the result that " cessation of febrile paroxysms " occurred in about

98 per cent. of the cases, by whichever drug they were treated. The commission found quinine and quinidine to be of equal value, cinchonidine only slightly less efficacious, and cinchonine the least valuable. The commission's results were obtained by a compilation of reports from 26 medical officers. This report received little circulation and was lost sight of for many years. Mr. Dawson next reviews the more recent work of MacGilchrist (1915), Acton (1920), Fletcher (1923), Sinton and Bird (1929), which does little more than confirm the work which the Madras commission carried out sixty years before, except perhaps that the more recent inquiries have shown that cinchonine (which was used extensively in Italy during the quinine shortage of the war) is but little inferior to quinine, and is not more toxic than that drug.

W. Fletcher.

Kerbosch (M.). **Cinchona Culture in Java : its History and Development.**—*Proceedings of the Celebration of the Three Hundredth Anniversary of the First Recognised Use of Cinchona. Held at the Missouri Botanical Gardens, St. Louis, October 31–November 1, 1930.* pp. 181–209. 1931. St. Louis, Mo., U.S.A. Also in *Geneesk. Tijdschr. v. Nederl.-Indië.* 1931. Apr. 1. Vol. 71. No. 4. pp. 317–344. With 1 text fig. & 4 plates. [4 refs.]

For more than two centuries the exploitation of cinchona in its natural forests went on unchecked ; it is chiefly due to the French savant, Weddell, who visited the cinchona districts in 1843–1848, that efforts were eventually made to introduce the plant into other tropical countries in order to prevent its total extirpation. In 1852, a Dutch expedition under Hasskarl brought seeds and plants to the botanical gardens at Buitenzorg in Java. In 1860, a British expedition under Sir Clements Markham ultimately succeeded in delivering in British India more than 450 live plants and about 100,000 seeds of *C. succirubra*, which has become of extraordinary importance as the base on which to graft the *C. Ledgeriana* varieties. In the highlands of Java there is a porous soil with much humus of recent volcanic origin. In the Preanger Regencies, on the slopes of the volcanoes and the plateaus between them, especially on the plateau of Pengalengan, the trees flourished, and it appeared as if their cultivation had a splendid future in Java ; yet, without a fortunate accident, it could never have developed and attained the great economic importance which it now possesses. When the trees were big enough to furnish sufficient bark for analysis, it was discovered with dismay that the yield of quinine in all varieties, except one, was extremely low ; and as regards the one exception, it grew so badly that it gave little bark. The total alkaloids were 2 to 5 per cent. and the quinine content between 1 and 2 per cent. Then came the " fortunate accident " : in 1865 Charles Ledger sent a lot of seeds collected in the Rio Mamore valley of the Bolivian Province of Canpolican, to his brother in London, with instructions to sell them to the British Government. When negotiations were unsuccessful, the brother, fearing that the seeds would lose their power of germinating, sold some to the Netherlands Government, and they were sent to Java. Ledger's remaining stock was sold to a British Indian planter who exchanged it for succirubra seed with the British Government. In the year 1872, the first analyses of the barks of the Ledger cinchonas were made in Java, and they yielded far more quinine than any which had been grown up to that time. Before the discovery of the Ledger barks,

those with an average percentage of 1 to 1·5 per cent. quinine were the best producers, but some samples of the Ledger bark yielded up to 8 per cent. ; this bark was also remarkable for the ease with which the quinine crystallized as sulphate, and it fetched four times the price of the old bark at the Amsterdam auctions. The yield was still further improved by taking grafts from selected trees and planting them out in isolated gardens, so that it was possible to collect seeds that were produced by the mutual fertilization of Ledgerianas with a high percentage of quinine. The Ledgeriana cuttings were grafted on succiruba bases, because these provide a strong root system, can develop in less fertile soil, and possess greater resistance against the dreaded root fungus.

The first 20 years of cinchona planting in Java, before Ledgeriana came into bearing, were financially a failure ; it was looked upon as an expensive hobby of the Government, the public frequently expressed their dissatisfaction, and no private companies could be induced to take it up. The discovery of the Ledger cinchona changed all this ; private enterprises became interested, the Government supplied seeds and cuttings without charge, and, in a short time, there were many private plantations. The result of successful cultivation was overproduction, and a tremendous fall in prices which made profitable exploitation impossible. The Ceylon planters cut down their trees, dumped large quantities of bark on the market, and planted tea instead. The more scientific cultivation in Java enabled it to resist the strain. The cinchona bark monopoly in the Dutch Indies has grown exclusively by the survival of the fittest ; never has the Government tried to maintain this monopoly by special laws, they have always been ready to supply selected seeds and plants to other countries, and the whole world owes a debt of gratitude to Java for persevering in the cultivation of cinchona in spite of the unfavourable circumstances. For the whole of humanity, the continuation of cinchona cultivation is of vital importance ; it must be economically possible or it may be abandoned as it was in Ceylon.

The cinchona planters have attempted to preserve an economically profitable cultivation by means of the Cinchona Agreement. Formerly, the quinine manufacturers, who were united, practically dictated the price of the bark, and they kept a very wide margin between this and the price which they charged for quinine. At last, the planters organized themselves, and, after a long fight, the Agreement of 1913 provided a proper basis of co-operation between the producers and the manufacturers. The correct execution of the Agreement is intrusted to the Kinabureau in Amsterdam, which consists of six representatives of the planters and six of the manufacturers. The Government subscribed, but made it a condition that they would surrender their membership if they found that the Agreement formed an impediment to the supply of cheap quinine to malarial districts. As the Government, through its own plantations, controls about 10 per cent. of the entire production, the Agreement could not stand without them. It will be clear then that there is no question of a " trust " arising from a desire to exploit a monopolistic position by forcing up prices. Without the Cinchona Agreement, quinine would become a speculative article in the hands of middlemen, as it was in the past before the war ; in fact, without the Cinchona Agreement, the supply of cheap quinine to malarial districts would be by no means assured.

W. Fletcher.

MIDDLETON (William S.). **The Yellow Fever Epidemic of 1793 in Philadelphia.**—*Ann. Med. History.* 1928. Dec. Vol. 10. No. 4. pp. 434–450. With 3 text figs.

A few points of interest emerge in this rather dull account of an overwhelming epidemic of yellow fever in Philadelphia.

The whole year before the outbreak had been unseasonably warm and dry. Infective cases seem to have arrived by sea in July and August. The first local case occurred on August 5th. There was a downpour of rain on August 25th, and thereafter practically none until October 15th, when the epidemic was abating. Indeed, it seems a pity that this record makes no suggestion regarding the breeding places of Aedes at a time when " springs and wells failed. The dust in the roads reached a depth of two feet. The pastures burned out and apples and pears shrivelled on the trees."

The medical men of the city were very sharply divided into those led by RUSH who maintained that the pestilence was of local origin from the emanations of putrifying matter and those, represented by the College of Physicians, who believed the disease imported. The conflicting views were maintained by their respective supporters with considerable acrimony.

RUSH was a remarkable man. He worked heroically throughout the epidemic and is said to have survived two attacks of yellow fever. In treatment he used venesection and the " ten and ten " formula of YOUNG, i.e., 10 grains calomel and 10 grains jalap, the latter because the action of calomel alone was too slow ! The controversy over the origin of the 1793 yellow fever led to RUSH'S resignation from the College of Physicians.

Everyone, including RUSH and the College, seems to have ignored the following which appeared in the *American Daily Advertiser* of August 29th.

" As the late rains will produce a great increase of mosquitoes in the city, distressing to the sick, and troublesome to those who are well, I imagine it will be agreeable to the citizens to know that the increase of those poisonous insects may be much diminished by a very simple and cheap mode, which accident discovered. Whoever will take the trouble to examine their rain-water tubs, will find millions of the mosquitoes fishing(?) about the water with great agility, in a state not quite prepared to emerge and fly off : Take up a wine glass full of the water, and it will exhibit them very distinctly. Into this glass pour half a teaspoonful, or less, of any common oil, which will quickly diffuse over the surface, and by excluding the air, will destroy the whole brood. Some will survive two or three days but most of them sink to the bottom, or adhere to the oil on the surface within twenty-four hours. A gill of oil poured into a common rain-water cask, will be sufficient : large cisterns may require more ; and where the water is drawn out by a pump or by a cock, the oil will remain undisturbed, and last for a considerable time. Hickory ashes have been tried without effect."

J. F. C. Haslam.

HARE (Hobart Amory). **Stephen Girard and the Great Epidemic of Yellow Fever in 1793 and the Lesser Outbreaks in 1787, 1798, 1802 and 1820.**—*Ann. Med. History.* 1930. July. New Ser. Vol. 2. No. 4. pp. 372–382. With 3 text figs.

Stephen GIRARD was a wealthy merchant of Philadelphia who in the great epidemic of yellow fever in 1793, when everyone who could, fled

from the city, volunteered to nurse the sick, and converted the hospital from a place of neglect and terror into a well-organized institution where the sick were well cared for. He founded Girard College. The author quotes at length from Matthew CAREY.

A. G. B.

PLAZY. Du rôle des médecins de la marine dans l'étude de la fièvre jaune. [**The Part played by French Naval Medical Officers in the Study of Yellow Fever.**]—*Arch. Méd. et Pharm. Nav.* 1930. Apr.-May-June. Vol. 120. No. 2. pp. 245–261.

In this inaugural lecture of the course " de l'école d'application " at Toulon (January 1930) Dr. Plazy gives to the students an interesting account of the early writings of French naval doctors on yellow fever. He states that CORNILLAC and BÉRENGER-FÉRAUD make short work of the hypothesis of its African origin. The disease, they say, did not appear in Senegal till relations between the Old and New Worlds were established. The latter author anticipated the fear that the piercing of the Isthmus of Panama would introduce yellow fever into the Pacific. Many of the early observations were not explicable till the discovery of the part played by the mosquito, e.g., that the zone in which the disease spread lay between 48°N.L. and 42°S.L., the optimum temperature for epidemics being 25° ; that yellow fever did not occur in Brazil above 700 metres, but was found at Caracas at 1,000 metres ; the pernicious influence for ships of a breeze off the land. The special receptivity of the white race was noted [but the observation that 500 Nubians sent to Mexico from Egypt remained well when the Mexican and white troops were decimated by yellow fever is not easily explained]. Their clinical descriptions, he says, have never been surpassed.

In the first French treatise, that of DE LA MARTINIÈRE of Martinique which appeared in 1703, the disease was described as contagious and for more than a century it was designated " la contagion," but later there were desperate contests between the contagionists and non-contagionists. CHARVIN, who was of the latter, proved his point by swallowing blood vomit and smearing it on his body, but his opponents quoted Surgeon-Major CONAN who gave up his cabin to a lady with yellow fever, imprudently returned to it on the 3rd night after her death and fell ill next morning. Naturally the traders were strong non-contagionists. Lastly we have tales of heroism, not peculiar to the French, that of the doctor who, realizing the nature of his illness shut himself in his cabin and refused all help, and that of another who stricken the same time as his friend, attended and treated him and noted down his symptoms, himself succumbing the next day.

A. G. B.

BIRD (Jorge). **The Conquest of Yellow Fever.**—*Bol. Asoc. Med. de Puerto Rico.* 1930. Dec. Vol. 22. No. 183. pp. 249–256.

The following extracts from Dr. Bird's paper illustrate the influence of tropical disease on history :—

" Yellow-Fever has played an important part in the political history of some of the countries situated along the Caribbean Sea. The fact that the island of Puerto Rico is actually American and not British is practically

due to an outbreak of Yellow-Fever. In 1598, when Puerto Rico was a Spanish colony Lord Cumberland attacked San Juan, the capital of the island, with a British fleet and succeeded in capturing the city. San Juan remained under Lord Cumberland's rule during five months. Lord Cumberland was just planning to make a British colony out of the island when a frightful epidemic of Yellow-Fever broke out among his troops and he was forced to leave the island.

" Haiti owes its independence practically to an epidemic of Yellow-Fever. The Haitians rose in arms against the French just as Napoleon was planning to use Haiti as a base for the colonization and fortification of the territory of Louisiana. Napoleon sent some of his best troops to subdue the country but they met with a stubborn resistance and, when an epidemic of Yellow-Fever broke out among the troops the French were forced to leave the country. It was the irony of fate that this defeat of the French at the hands of the blacks came at a time when the all-mighty Napoleon was at the peak of his glory in Europe."

A. G. B.

Scott (H. Harold). **Charles Finlay, Pioneer.** [Correspondence.]—*Trans. Roy. Soc. Trop. Med. & Hyg.* 1929. Apr. 25. Vol. 22. No. 6. pp. 541–543.

Apropos of Dr. Hindle's " Experimental Study of Yellow Fever " (1929), Dr. Scott writes that far from sufficient credit has been given to the work of Finlay. In 1881, nearly 20 years before Reed and Carroll, Finlay enunciated his theory of an intermediary transmitting agent of yellow fever and suggested a mosquito which had " on the corselet a combination of lines in the figure of a 2-stringed lyre " and was described as *Culex fasciatus*. He found by experiment that the disease was thus transmissable by bites in the early days—he thought up to the fifth day. He started making immunization experiments a early as 1884 and states that between 1881 and 1891 he had a record of 67 persons experimentally inoculated by what he calls contaminated mosquitoes, with only one death. Dr. Scott remarks that he was lucky. The figures quoted show that of 33 inoculated none died of yellow fever, whereas of 32 not inoculated 5 died. [With all credit to Finlay his contemporaries were perhaps justified in considering the matter unproven, and it may be remarked that Noguchi's immunization figures show the risk of trusting what appear to be well-nigh conclusive results (see this *Bulletin*, Vol. 26, p. 305 (footnote)).]

A. G. B.

van Doninck (A.). Tractaeten vande peste vóór de 18de eeuw in Vlaanderen. [**Treatises on Plague before the 18th Century in Flanders.**]—*Nederl. Tijdschr. v. Geneesk.* 1930. July. 5. 74th Year. 2nd Half. No. 27. pp. 3431–3441. [6 refs. in footnotes & 15 further refs. to Flemish plague literature of 17th century.]

Plague has raged over Europe from the earliest Roman times and was originally called the Justinian plague. Its symptoms, especially the occurrence of the bubo and of lung symptoms, were well recognized even by writers of the 14th century, although there was some tendency to call all raging epidemics by the name of plague. Much was written on the subject in the last half of the 16th century and the beginning of the 17th. Although emphasis is laid upon the fact that the disease

was essentially a manifestation of the anger of God, medical works deal chiefly with a more proximate causation than the *ira coeli propter peccata* and put forward recommendations for both prevention and treatment. General agreement existed that the disease was greatly influenced by dirt and by badness of food. Prevention is advised as the most important means of combating the disease. It is the air which is fouled in plague. Purification, therefore, may be effected by kindling large fires and by destruction or neutralization of putrefactive effluvia. Evacuation of infected houses is recommended where possible. Avoidance of constipation is an important prophylactic measure, but the use of laxatives and the resort to blood letting are also favoured as curative measures in order to cleanse the sick humours. A special antiplague measure recommended by GHERING and other writers is the wearing of the precious stone, the hyacinth, pressed over the heart. Careful regulation of the daily life and dietary, attention to slight indisposition, avoidance of constipation, blood letting if the body condition requires it, disinfection of houses, cleansing of streets, removal of stagnant water, the prohibition of large gatherings of the populace, fairs and dance parties are among the definitely specified measures of prevention. As plague is an astral disease of subtle, spiritual, penetrating poisonous causation, it is advisable, says LAZARUS MARQUIS, to use some subtle spiritual medicament in the treatment of plague. That which he recommended possessed the name of *aqua theriacalis antipestifera*. It was a sudorific containing a multitude of ingredients and could be given along with cordials. The recommendations of writers like JACOBUS GHERING, JAN BOECKELIUS, MARQUIS LAZARUS and others are in some instances still as sound today as they were then : in other cases, as is only to be expected, they reflected the notions and superstitions with regard to disease and its cure which were prevalent at the time. By the year 1664 plague had disappeared from the Netherlands although it continued to manifest itself in England to about 1688 and in France to 1720.

W. F. Harvey.

i. HELLINGA (G.). De Amsterdamsche pesthuizen. [**Amsterdam Pest Houses.**]—*Nederl. Tijdschr. v. Geneesk.* 1928. Dec. 1. 72nd Year. 2nd Half. No. 48. pp. 5912–5938. With 9 figs. (1 double plate). [Refs. in footnotes.]

ii. ——. Het pesthuis na den brand (1732 tot ongeveer 1839). [**The Pest House after the Fire (1732 to about 1839).**]—*Ibid.* 1929. Jan. 5. 73rd Year. 1st Half. No. 1. pp. 35–62. With 9 figs. [Refs. in footnotes.]

iii. PENNING (C. P. J.). Het vroegere pesthuis te Harderwijk. [**The Former Pest House at Hardewijk.**]—*Ibid.* Aug. 3. 73rd Year. 2nd Half. No. 31. pp. 3569–3571.

iv. EMCK (W. F.). De voormalige pesthuizen te Gorinchem. [**The Former Pest Houses at Gorinchem.**]—*Ibid.* pp. 3571–3574. [2 refs.]

v. HELLINGA (G.). Een en ander over de overeenkomsten, aangegaan gedurende het tijdvak 1651–1699 tusschen regenten van het Amsterdamsche St. Pieters gast-en pesthuis en cureerders. [**Contracts between the Directors of St. Peter's Hospital and Pest House at Amsterdam and Therapeutists during the Period 1651–1699.**]—*Ibid.* Sept. 7. 73rd Year. 2nd Half. No. 36. pp. 4141–4146. [2 refs.]

i. Plague hospitals were already in existence in Amsterdam before the beginning of the 16th century as mention is made of a " New Pest-

House " having been built in the year 1500. Additional buildings were required owing to the severe epidemics of plague in 1557 and 1617. In 1630 the pest-house which was showing signs of decay was evacuated and used for dwelling houses and another building was erected to contain 340 patients. In 1658 a small hospital was built for the reception of smallpox patients and additional accommodation was provided about the same time in a canal boat. The so-called pest-houses were at first used for the reception of plague patients only, but subsequently persons suffering from other affections, such as mental disorders and venereal disease, were also admitted.

ii. On April 14th or 15th, 1732, the plague house erected in 1630 was burnt down and another was rapidly erected on the same site. Improvements were made in the water supply and lighting. It is noteworthy that humane treatment of the insane commenced earlier in the Plague House at Amsterdam than in any other country.

iii. The pest-house at Hardewijk which was founded in 1515 consisted of an oblong shed, divided the following year into two parts, in one of which the attendants lived while the other was occupied by those suffering from plague and other infectious diseases.

When the monks were expelled from Hardewijk their church was made to serve as a pest-house. The exact date of this event is not certain, but was probably between 1585 and 1602.

iv. From 1348 to November 1667 when the last case occurred in the town, Gorinchem suffered from epidemics of plague with intervals of varying duration. Syphilis first appeared in the town in 1497 and the sweating sickness in 1529. A building was purchased by the town council in 1523 for plague patients and was demolished in 1572. Emck was unable to find where plague patients were treated after that date until 1602 when a new house was built and served for the reception of plague patients until 1681. From then until 1783 it was only used for the treatment of the insane.

In 1783 patients suffering from putrid fever were admitted and in 1813 cases of children's diseases. In 1827 the pest-house was converted into a military hospital.

v. In the second half of the seventeenth century in addition to the regular physicians and surgeons there was a class of persons who took an active part in the treatment of certain diseases, but did not undertake any operation without first making a contract with the directors of the hospital. Their special function was to cut for stone or undertake the treatment of syphilis. There were also persons belonging to this class who claimed to cure blindness and deformities. In 1742, however, a special surgeon was appointed to the pest-house who undertook the operations formerly carried out by these unqualified persons.

J. D. Rolleston.

Flatow (E.). Die Pest in der russischen Armee auf dem europäischen Schauplatz des russischtürkischen Krieges 1828–1829. [**Plague in the Russian Army in the War with Turkey 1828-1829.**]—*Sudhoffs Arch. f. Geschichte der Med.* 1929. Vol. 22. No. 2. pp. 151–173. With 1 map. [10 refs.]

One hundred years ago the Balkan area was not only the stage of war between Russia and Turkey, but also the scene of a serious combat between man and disease. Plague so greatly feared in the middle ages again appeared with all its horrors. The Russian Army suffered

severely and the unsanitary conditions of field service assisted the spread of the disease. In addition the Army suffered from malaria, dysentery, scurvy and tetanus. This outbreak was called by Surgeon-General Witt the " Wallachian disease " since the troops suffered badly there on the march and soldiers spread the disease in the general and field hospitals. A map is given of the region in which the war was fought, and plague met with. It is stated that since 1714 no plague had appeared in Germany, while in East and South Europe, the disease appeared now and then in certain foci : Odessa 1812, Bucharest 1813 ; and 1814–15 in Bosnia and Dalmatia. Until 1824 Moldavia and Wallachia were spared ; but in the years following plague occurred sporadically in Wallachia. To protect Russia a quarantine line was drawn along the river Dniester. The war records contain full and painful details of the symptoms of the plague and the miserable plight of soldiers attacked while on the march or on the field of battle. There is, however, nothing new in this lengthy description taken from the medical records. The death rate in the field hospitals was from 1·8 per cent. in May 1828, steadily rising to 19·6 per cent. in December 1829. In the stationary hospitals the mortality was much greater. A list of authorities consulted is given at the end of Dr. Flatow's paper.

J. H. Tull Walsh.

Kleine (H. O.). Der Schwarze Tod in Avignon. (Zur Erinnerung an den vor 600 Jahren in Europa erfolgten Einbruch der Pest.) [**The Black Death at Avignon. Commemoration of the Outbreak of Plague in Europe 600 Years ago.**]—*Deut. Med. Woch.* 1931. June 5. Vol. 57. No. 23. pp. 988–989.

A sketch of Avignon in the epidemic of 1361 and of the last hours of the papal physician Guy de Chauliac, who succumbed to plague.

A. G. B.

Labernadie (V.). De l'ancienneté de la lèpre d'après les Védas. [**Antiquity of Leprosy according to the Vedas.**]—*Bull. Soc. Path. Exot.* 1931. Mar. 11. Vol. 24. No. 3. pp. 175–176.

Jeanselme states that the Kushta of the Rig Veda Sanhita (1500 B.C.), according to some commentators, indicates leprosy. The author has studied this question. He finds that Kushta in the sense of leprosy is only found in classical Sanskrit, i.e., towards the Christian era, and that leprosy is not mentioned in the texts before that epoch.

A. G. B.

Wong (K. Chimin). **The Early History of Leprosy in China.**—*China Med. Jl.* 1930. Aug. Vol. 44. No. 8. pp. 737–743.

In Chinese literature the earliest reference to leprosy is in the Chow dynasty, sixth century B.C., where one of Confucius' disciples was said to be a leper and died of his disease. Hirsch and others believe that Pai Niu, as he was called, suffered only from scabies. It is a question of the precise significance of similar Chinese words and the author, after giving a list of 15 synonyms with the period in which they were employed, concludes that Pai Niu was undoubtedly the first leper of Chinese literature. Not, however, of medical writings, for if the " Nei Ching "

is attributed to its real author leprosy was known in China over five thousand years ago; four quotations are given from this treatise. Another passage is given from a book of the fourth century A.D. "The first symptoms of 'lai ping' are numbness of the skin or a sensation as of worms creeping. The eyesight is blurred, and there are dark scaly patches" and in Chao's "Pathology," a work published in A.D. 610, the System of Medicine of the time, there is a long account of the symptoms, with descriptions "so comprehensive that they include a variety of other skin diseases." Later, in the "Golden Mirror of Medicine," among the causes enumerated for infection by contact with lepers are mentioned unclean privies, houses, bedding, etc. From the earliest times leprosy has always been classified as a distinct disease, and has never been confused with syphilis or tuberculosis. Chaulmoogra oil is mentioned in the fourteenth century and its preparation is described. The Chinese believe that leprosy can be cured or at least modified by transmitting it to others through sexual intercourse, the poison being diminished in proportion to the number of victims.

A. G. B.

JEANSELME (E.). Comment l'Europe, au moyen age, se protégea contre la lèpre. Rapport présenté au VIIIme Congrès International de l'Histoire de la Médecine (Rome, 22–27 septembre 1930). [**How Europe protected itself against Leprosy in the Middle Ages.**]—*Bruxelles-Méd.* 1930. Sept. 21, 28 & Oct. 5. Vol. 10. Nos. 47, 48 & 49. pp. 1293–1295; 1324–1327; 1355–1357. [28 refs.]

Jeanselme holds that the general extinction of leprosy in Europe was due mainly to the isolation of those affected. Commencing with an edict promulgated in Lombardy in A.D. 643, he gives long lists of ecclesiastical, regal, and municipal ordinances, covering some 900 years, which were framed with the object of preventing contact between the leprous and the clean. It will occur to the critical reader that a system of prophylaxis which took nearly a thousand years to accomplish the aim of those who devised it, can hardly be considered satisfactory; or else that the various statutes cited were never really enforced, and so the disappearance of leprosy must have been due to some other cause. The mere presence of a law in a statute-book is no proof that anyone heeds it, as witness the excellent health laws in certain tropical countries to-day, and the appalling insanitary conditions which exist notwithstanding.

Elaborate enactments of the type quoted by the author had no place in the statutory law of England. Seemingly the only means of securing the removal of a leper in this country was for the aggrieved person to obtain a writ *De Leproso Amovendo*. But this applied only to a leper who resided in a town and who persisted in forcing himself into assemblages and gatherings "to their annoyance and disturbance." If he refrained from outrages of this kind he could not be removed from his house. There is little evidence of any strict segregation of lepers. Even the inmates of leper-hospitals systematically visited towns for the purpose of begging, and in certain localities they could exact toll of all corn and bread sold in the market, or, as in Shrewsbury, take a handful of corn from every sack offered for sale. The rules of the Sherburn leper-hospital, for example, expressly permitted the inmates

to receive visits from their friends, and such visitors as came from a distance were allowed to remain all night. Moreover the final punishment laid down for contumacious inmates was expulsion from the hospital. The records of St. Julian's leper-hospital, St. Albans, show that lepers could refuse to submit to isolation, for their unwillingness to lead a subjugated life is given as the reason of the shortage of patients in 1344, when it is stated that commonly there were no more than three inmates, and sometimes only one. The curious wording of the well-known edict of 1346 which ordered the expulsion of lepers from London indicates that the "absolute and strict segregation" of lepers, alleged by some modern writers, had no existence in fact. The preamble of the order declares that the lepers, *inter alia*, "by carnal intercourse with women in stews and other secret places, detestably frequenting the same, do so taint persons who are sound, both male and female, to the great injury of the people dwelling in the city aforesaid, and the manifest peril of other persons to the same city resorting." The relief resulting from this belated measure can only have been temporary, for several other expulsion orders were issued subsequently, each proving that its forerunner had failed in its object.

Yet in spite of this promiscuity of intercourse, leprosy diminished in England and finally disappeared. The extent of the disease at its worst the reviewer believes to have been only a tithe of what is often represented. This aspect of the question is too complicated to discuss here, and it is sufficient to mention that we read of "temporary leprosy," and of "lepers" who were cured by the application of sulphur, and by inunctions of mercury. But it is indisputable that the heterogeneous collection of ailments generally labelled as leprosy in old times, included some proportion of sufferers from infection with Hansen's bacillus. Leprosy in the main is a class disease, and so close was the association in people's minds of leprosy and want, that the words "leper" and "lazar" sometimes merely meant beggar, without any signification of disease. For this reason we find Chaucer using the odd term "sike lazars" to make it clear that he did not refer to lazars who were whole. The long series of recurring famines recorded by the old chroniclers shows that the poorer English can seldom have been far above starvation level, and so there was always soil fit and ready for the seed of infection, and the reviewer believes that the extinction of leprosy in England resulted from a gradual process of what today in another connexion is called bonification. He believes, too, that any community which, in a relative sense, "gets rich" will at the same time shake off "that abominable blemish, the foul contagion of leprosy."

W. P. MacArthur.

Vogt (O.). Die Basler Cholera Epidemie vom Jahre 1855. [**The Basel Epidemic of Cholera in 1855.**] *Schweiz. Ztschr. f. Hyg.* 1929. Vol. 9. No. 12. pp. 830-847. [5 refs.] [Basel-Stadt Canton Health Office, Basel.]

After some remarks on Asia as the home of cholera and about Koch's discovery of the cholera vibrio in 1883 the author notes that in the European pandemics of 1846-1862 Basel was included in the visitation. In the years 1854 and 1855 the disease was very severe in south and western Europe. The first case in Basel occurred on July

27th, 1855 in the person of a mechanic who worked in what is the Rümelinbachweg and lived in the Rappoldshof in "Little Basel." It cannot be accurately known how the infection was introduced. A second and a third case came from the same factory during the following two days. On August 5th, cholera appeared in Little Basel in the house where the first patient had lived. It does not seem necessary to follow the succeeding dates and cases. Full information is given, both of morbidity and mortality, from July 27th to October 1st, 1855, in a chart on p. 833. Three hundred and ninety persons were attacked, and 205 died. Statistics are given showing death rates according to age; the town, river and canals (with plan) are described. The sick were removed to the town hospital and the dead were buried under the control and care of the hospital authorities. Extracts are given showing the sanitary precautions taken. In 1867 Switzerland again suffered from a small epidemic.

J. H. Tull Walsh.

STICKER (Georg). Bekämpfung der asiatischen Cholera vor hundert Jahren. [**Fight with Cholera One Hundred Years ago.**]—*Klin. Woch.* 1930. Mar. 29. Vol. 9. No. 13. pp. 612–616.

The year 1830 was, for the people of Europe, one of great trouble. Asiatic cholera had been present in 1817 and during thirteen years had ebbed and flowed; but in 1829 it spread attacking Russia in a terrible manner. The rumour of its near approach caused the governments in Europe to prepare for its advent and to form laws for guidance and transport of victims of the disease and to make some arrangements for treatment. The sanitary authorities and their police organization were on guard. The cause of cholera was not then known, but it was thought that it could be contracted by contact, from fomites or from a distance. The Institute of France sent medical missions to Poland and Russia to study cholera; and in the meanwhile, the French government set on foot health-passes and quarantine. Nevertheless, Paris suffered severely in 1832. It was not only in the Paris Academy that the subject received consideration; the cholera work of Professor ENNEMOSER in Bonn is another example. In India, etc., such control as was exercised was in the hands of the English, and their consuls, who at that time despised quarantine; but cholera was fully recognized as a contagious disease. In Moscow, between September 1830 and March 1831, 250,000 persons died. Cordons with patrols were formed by the western states, but they did not fully succeed, and cholera spread so that Austria and Prussia hastened to double their cordons. On December 28th, 1830 cholera appeared in Vienna and Budapest. Although there was no specific treatment for cholera and even moderate sanitation was only beginning to be understood the countries and towns issued special rules during these epidemics. Panic was deprecated, strict cleanliness in the house enforced. Chlorine and chloride of lime were used as disinfectants. Much is said about the books and papers written at the time including one for laymen. These are of historical interest only. In 1831 in spite of all efforts cholera had spread all over Europe and reached England. It continued to prevail in 1833, 1834 and 1835. The author also mentions a severe outbreak in Munich in 1836.

J. H. Tull Walsh.

BUTLER (C. S.) & HERNANDEZ (Vincent). **Our Inheritance of Fallacy from Chapter XIV of Oviedo's Historia General y Natural.**—*Southern Med. Jl.* 1929. Dec. Vol. 22. No. 12. pp. 1098–1102. [17 refs.]

There are two opposing views regarding the origin of the epidemic of syphilis that afflicted Europe in the closing years of the fifteenth century. The protagonists of one party contend that syphilis was unknown in Europe until introduced from America by Columbus' sailors. These adventurers (who arrived at Pelos on March 15th, 1493), are declared to have infected the Spanish ports, whence the disease was carried to Italy by Gonzalo's Spaniards who opposed Charles VIII's army in the Neapolitan campaign, usually loosely spoken of as the "Siege of Naples." That syphilis in a severe form prevailed amongst the contending forces in this campaign seems certain, but the responsibility of the Spaniards is quite another matter.

The other theory is that the fifteenth century outbreak was merely an extension of a disease already existing in Europe, intensified in virulence and diffusive power by war, famine, and moral depravity. There is nothing inherently incredible in this view, for epidemics of syphilis, though much less widespread in their range have been recorded on many occasions since the fifteenth century, for example in East Prussia during the Seven Years' War, and in Courland following the Russian invasion in 1800.

The object of the paper here reviewed is to prove by historical facts that the syphilis recorded in France and Germany in 1495 cannot be laid to the charge of Gonzalo's Spaniards. Charles VIII with one half of his army quitted Naples for France in May 1495, but at that time the Spaniards had not yet arrived in Italy; therefore, according to the American theory, Charles' troops conveyed the disease to France and Germany before they themselves had had the opportunity of acquiring it. The authors could have strengthened this argument by pointing out that Charles' retreating forces, after leaving Naples, were detained in Northern Italy until October 1495, whereas a printed edict* of the Diet of Worms dated August 7th, 1495 shows that syphilis was then widespread in Germany and generally recognized, that is, two months before the return of the first contingent of Charles' troops. The remainder of Charles' army continued the struggle in Naples until they were forced to capitulate in July 1496, having endured the worst horrors of famine and epidemic intestinal disease.

The reviewer is of opinion that the "leprosy" of medieval times included a large element of syphilis. It is not surprising that the fifteenth century extension was generally, though not universally, regarded as a new disease, for the age accepted a similarly erroneous belief regarding the recent origin of typhus fever. The positive and repeated assertions of early medieval writers that "leprosy," in part, was of venereal origin cannot be dismissed as mere theoretical preconceptions. As CREIGHTON asks, "What are we to make of this kind of leprosy?—'In hoc genere, causa est accessus ad mulierem ad quam

* The "Foul pocks" (*pösen plattern*) of the original edict is translated by "*Malum Francicum*" in the Latin version issued a little later. SUDHOFF in his exhaustive researches discovered in Copenhagen an Italian manuscript, dated 1465, which contains two prescriptions entitled respectively, "*Electurio optimo al mal franzoso*," and "*Per fare siropi de mal franzoso.*" These prove that the French pox was recognised and named at least a generation before the discovery of America.

accessit prius leprosus ; et corrumpit velocius vir sanus quam mulier a leproso. . . . Et penetrant [venena] in nervos calidos et arterias et venas viriles, et inficiunt spiritus et bubones, et hoc velocius mulier,' etc. Or to quote Gilbert again. ' Ex accessu ad mulieres, diximus superius, lepram in plerisque generari post coitus leprosos.' Or in Gordonio ; ' Et provenit [lepra] etiam ex nimia confibulatione cum leprosis, et ex coitu cum leprosa, et qui jacuit cum muliere cum qua jacuit leprosus.' That these circumstances of contracting *lepra* were not mere verbal theorizings inspired by the pathology of the day and capable of being now set aside, is obvious from a *historia* or case which Gordonio introduces into his text. ' I shall tell what happened,' he says ; and then proceeds to the following relation :

" ' Quaedam comtissa venit leprosa ad Montem Pessulanum [Montpellier] et erat in fine in cura mea ; et quidam Baccalarius in medicina ministrabat ei, et jacuit cum ea, et impregnavit eam, et perfectissime leprosus factus est.' Happy is he therefore, he adds, who learns caution from the risks of others."

Over two hundred years ago, Beckett pointed out that John of Gaddesden clearly indicates that a local lesion might preface a generalized " leprosy." Writing " de infectione ex coitu leprosi vel leprosae," this early fourteenth century physician advises " . . . post coitus statim lavet virgam cum aqua mixata aceta, vel cum urina propria et nihil mali habebit," whilst women who have run the risk of contracting " leprosy " in the like manner are counselled to wash locally with a certain alcoholic infusion. Another pre-Columbian writer, Thomas Gascoigne, also cited by Beckett, records that divers men of his acquaintance had died " ex putrifactione membrorum suorum et corporis sui " which infection had been brought about " per exercitium copulae carnalis cum mulieribus."

Due mainly to the advocacy of Osler, and also to the uncompromising assertions in D'Arcy Power and Keogh Murphy's " *System of Syphilis*," the theory of the American origin of syphilis is generally accepted by medical men in this country. In the last-named work the writer of the historical section declares, " All available statements and facts point to the last decade of the fifteenth century—particularly the years 1493–1500—as the time when syphilis first appeared in the Old World. There is not a particle of evidence to show that the disease existed in Europe before that time."

This is a hard saying.

W. P. MacArthur.

Coutts (F. J. H.). **Presidential Address. Venereal Diseases from the Epidemiological Point of View.**—*Brit. Jl. Ven. Dis.* 1929. Jan. Vol. 5. No. 1. pp. 1–21. [17 refs.] Discussion pp. 30–37. [Summary appears also in *Bulletin of Hygiene.*]

[This address will not bear condensation. It ought to be read in the original, particularly by those who believe that syphilis did not exist in Europe before 1493 and by those who attribute all the decreases in the incidence of syphilis in recent years to the intervention of modern treatment.] The author presents evidence that syphilis was smouldering in Europe long before 1493. He suggests that the epidemic following the siege of Naples in 1494 caused people generally to believe that a new disease had appeared. [Just as influenza was thought to be a new

disease when the big epidemic of it swept through the world about forty years ago.] The decrease in syphilis may be mainly part of an epidemic cycle such as occurs in other infectious diseases. The address contains other matter of great interest which can otherwise be found only by industrious study in a well-furnished library.

L. W. Harrison.

Gros (H.). Qui introduisit la syphilis à Tahiti ? [**Who introduced Syphilis to Tahiti ?**]—*Bull. Soc. Path. Exot.* 1929. Jan. 9. Vol. 22. No. 1. pp. 30–34. [1 ref.]

The author's answer to the title of his paper is—It is impossible to say ! The question arose in the first place owing to Captain Cook accusing the French of having infected " les belles Otahitiennes " with the disease. In this interesting little article Dr. Gros tries to unravel this corner of medical history associated with the voyages of Cook, Bougainville, Wallis, etc. He fails to find an answer, but suggests that the Spaniards might just as well be inculpated as the French or English, or future research may shew evidence of syphilitic disease in the bones of those who existed long before the advent of the European. At all events in the present state of our knowledge it is wrong to attribute all the ills from which the inhabitants of Oceania suffer to the influence of the European.

H. S. S.

Journal de Médecine de Bordeaux. 1929. Oct. 10. Vol. 106. No. 26. pp. 790–796.—La médecine à Bordeaux en septembre 1829. D'après le " Journal de Médecine-Pratique " titre de notre journal, il y a cent ans. Jean Hameau, précurseur de Pasteur, découvre la pellagre. [**Jean Hameau, Discoverer of Pellagra.**]

It was in May 1829 that Jean Hameau read his first note, before the Royal Society of Medicine of Bordeaux, dealing with a disease hitherto unknown in France. From the masterly clinical description there is no doubt that this disease was pellagra. He states that the condition occurs at any age and in either sex, but was only observed among the poor who subsist upon a coarse diet. At first, the disease is noticed in the summer months and, lasting only a few weeks, disappears in the winter. After two or three of these attacks it becomes permanent and finally ends in death. The description of the dermatitis, glossitis, gastro-intestinal and nervous symptoms constitutes a masterpiece and clinical work since has added nothing of importance to it.

In July of the same year Hameau read his second paper, which gave full details of local conditions and described very fully certain cases of the disease. Particular reference was made to one Commune, viz., Teich, containing about 1,000 inhabitants engaged entirely in agriculture. The condition of these people when the harvest fails or the price of grain is low is one of the direst poverty. It is not necessary here to describe the cases, but one thing must be mentioned, namely, the extraordinary care and accuracy of a busy country practitioner, which provides an example of what progress medicine can make under conditions most adverse to research if only a degree of genius and unbounded enthusiasm are present.

It is only to be expected that such a keen and analytical intelligence as HAMEAU evidently possessed should deeply concern itself with the mystery of pellagra etiology. It is fascinating to watch his efforts in this direction, especially as we now think that the mystery has been satisfactorily cleared up. Is pellagra a disease secondary to some internal derangement? If so, it is peculiar that no premonitory signs are present. Can it be due to gastro-intestinal upset? If so, why does the disease never occur among the resin workers of the district where hardships, both dietetic and otherwise, are common? The cause may then be an external one. Two facts demand explanation. (1) It is only shepherds, agricultural labourers, and those coming into close contact with them, who have the disease. (2) The agricultural labourers of the Commune of Teste escape, while the workers in all the other Communes are attacked. Geographical conditions, water, diet, noxious plants and insects, etc., are in turn considered as possible etiological factors, but the author is not satisfied with any of these. The salient feature is that the Commune of Teste is the only one in which sheep are not present and the only one where no sheep manure is used in the fields. In the other Communes, moreover, the shepherds and agricultural labourers wear untanned sheepskins which are never washed. Further, the vine growers of Gujan do not use sheep manure for their plants and no cases of pellagra have occurred among them. Lastly there was found among the sheep a mortal disease, present only in the summer, characterized by severe diarrhoea with redness of the inner surface of the thighs. Is it not possible that in the handling and skinning of these affected sheep a contagious disease is contracted? HAMEAU convinced himself that pellagra was in some way associated with sheep and this conclusion is not so illogical when one considers for example, the position of a new investigator faced for the first time with the picture of blacktongue in dogs and of human pellagra in the same district.

A. D. Bigland.

GREEN-ARMYTAGE (V. B.). **Gynaecology and Tropical Diseases in Shakespeare.**—*Indian Med. Gaz.* 1930. June. Vol. 65. No. 6. pp. 333–339. [11 refs.]

In the universal theatre of Shakespeare, the physician, the surgeon, the apothecary, the nurse, and the midwife are all, of course, to be found, either playing their parts on the stage or swelling the orchestra of metaphor and simile. Everyone knows the punctilious doctor, setting down for professional remembrance the sinister ejaculations of Lady Macbeth's trance, but careful not to talk too much; and Falstaff's shabby soliloquy on honour's shortcomings in surgery; and Friar Laurence cutting his potent herbs in the magic of the grey-eyed morn; and the shop of the needy Mantuan apothecary; and the garrulous nurse revealing herself in the sly suggestions of her story of Juliet's weaning; and the midwife with her traditional aroma; and so on. Here Colonel Green-Armytage, having searched the Plays diligently, furnishes forth evidence of the poet's familiarity with the inside of our profession enough almost to convince the vociferous Baconian pedant that Shakespeare was Harvey or Sydenham, and not Bacon after all.

Since the paper is in the main a collection of quotations from the plays with fit accompaniment of commentary, we can but indicate its professional range and savour. It begins with early marriages, and with desirable disparity of age in wedlock—" Let still the woman take An elder than herself ; so wears she to him, So sways she level in her husband's heart." The prolegomena and accidents of childbirth follow—quickening, and the whimsical longings of pregnancy ; antenatal influences that perpend disaster to the foetus, or blemish and deformity to the infant ; premature birth, dystocia, and Caesarean section—Macduff and Posthumus, both " from the womb untimely ripped " ; and then the (prophetic) " first cry " of the infant—" the first time that we smell the air We wawl and cry that we are come To this great stage of fools." Wormwood to the dug, as in Juliet's weaning ; Love-philtres, and charms, etc., for sterility ; and midwives and their affinity for aqua vitae come next, and are followed by quotations of medico-legal interest. Among diseases included in the author's quotations are ague, plague, dysentery, anaemia, consumption, hydrophobia, pyorrhoea, syphilis, enuresis, itch, and goitre. Under ague we are sorry not to find that significant figure " worse than the Sun in March this praise doth nourish agues," since it is one of those passages that reveal Shakespeare's intimate knowledge of the incidence of the disease. Finally there are quotations regarding the effects of diet and of alcohol, and on diagnosis by inspection of the urine, and some fine and familiar passages on the " mind diseased," and on prognosis—looking into the womb of time by the light of past history.

Colonel Green-Armytage does not claim to have treated his subject exhaustively, his chief purpose being to awaken a " fresh interest in the world's greatest poetic genius." His success is assured ; and yet one could wish that he had taken capital notice of one of the strongest points in Shakespeare's conception of the healing art, namely his thorough understanding of the *curative* influence of Sleep—" Nature's soft nurse," " Sore labour's bath," " Balm of hurt minds." The exquisite passages in praise of Sleep, the healer, may be as familiar as church bells, but their melody can never die away, and here they would have harmonized to the full with the fine quotations chosen by the author to illustrate the poet's conception of maladies of the mind as infirmities to be treated with the " silken thread " of sympathy and suggestion, and not as stuff for the strait-waistcoat.

A. Alcock.

MISCELLANEOUS.

Pessôa (Samuel B.). Nota sobre algumas substancias larvicidas. [**Some Larvicidal Substances.**]—*Folha Med.* 1930. Dec. 25. Vol. 11. No. 36. pp. 409–410.

The author puts on record the results of laboratory experiments with various advertised larvicides, employing Anophelines and Culicines at different stages; no field tests have been made.

1. *Caporit*, a Bayer product containing 95 per cent. of Ca hypochlorite, in a strength of 0·5 per cent., killed larvae in 3–4 hours, more rapidly still in 1 per cent. solutions. 2. *Fluoride of calcium and aluminium*, recommended by the Rützersmerke Co., was quite ineffective even in 3 per cent. solution. 3. *Cruzol*, a substance readily miscible with water [composition not stated], killed larvae in a few minutes in a strength of 1 in 8,000. It was also fatal to fish and is therefore indicated mainly for small domiciliary or local collections. 4. *Solarina*, a derivation of, but less effective than, kerosene, killing in 5 hours, whereas kerosene or Diesel oil takes only 2 hours. 5. *Dyes sensitized by light*, such as erythrosin or Congo Red, killed small larvae in fairly high dilution, 1 : 100,000—1 : 500,000, in 1–25 days, but was useless for larger larvae or for pupae, which developed normally in water so treated. The author believes that these photodynamic substances act largely by destroying bacteria and protozoa and thus depriving the larvae of their food supply. [This would hardly explain their having no effect on larger larvae.] 6. "*Salus*" proved almost useless in the author's hands.

H. H. S.

Walch (E. W.) & Bonne-Wepster (J.). Vergelijkend onderzoek van enkele oliesoorten en mengsels hiervan als larvendoodende middelen, I. [**Oils and Oil Mixtures as Larvicides.**]—*Geneesk. Tijdschr. v. Nederl.-Indië.* 1929. Apr. 10. Vol. 69. No. 4. pp. 333–348. [English summary pp. 348–349.]

"The object of our experiments therefore was to try and find a larvacide suitable to the conditions in our archipelago and which would be less expensive than the solar oil now generally in use and at least equally effective.

"In the first place we recommend as such the so-called 'sludge,' a waste product of the residu-manufacturing of the Bataafsche Petroleum Maatschappij. Even in breeding-places with a great many algae 5 cc. of it per square meter is sufficient if the spreading is done quite evenly. As in practice this condition will not always be fulfilled, it will generally be wise to increase the amount of oil used to 7·5 or even 10 cc. per square meter. The price of sludge is f 4.50 per 300 L. (Delivered at Tandjong Priok).

"If it does not matter if the aquatic vegetation be destroyed even the still cheaper waste crank-case oil may be applied, of which, however, 40 cc. per square meter are needed. This larvacide will be especially useful in places where the sludge might be hard to get. By adding 10 per cent. kerosene and 1 à 2 per cent. castor- or coconut-oil (Oleum cocos) to the waste oil a mixture is obtained which gives already very good results when used in quantities of 20 cc. or even 10 cc. to the square meter, and which does not do so much harm to the vegetation. A mixture of 3 parts waste oil and one part solar oil also gives very good results if 20 cc. per square meter are used."

A. G. B.

PURDY (J. S.). **Petroleum in the Destruction of Insect Carriers of Disease.** —*Public Health.* 1930. Sept. Vol. 43. No. 12. pp. 388–392.

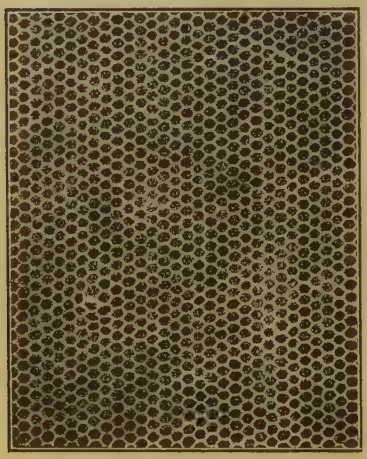
The author describes his experiences in the use of crude petroleum and kerosene for the control of mosquitoes, fleas and flies.

A. G. B.

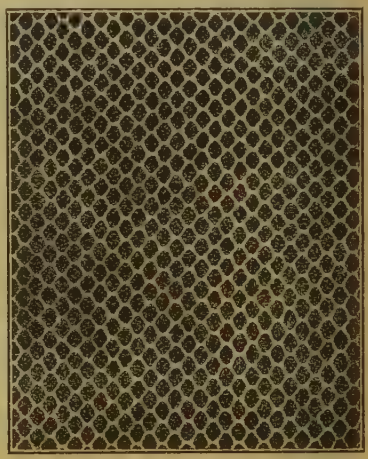
GATER (B. A. R.). **Mosquito Nets.**—*Malayan Med. Jl.* 1930. Mar. Vol. 5. No. 1. pp. 29–32. With 3 text figs.

The author writes :—

" A tour of shops in Kuala Lumpur revealed the fact that mosquito netting is usually sold as ' first ' or ' second ' quality with no specification as to the mesh or the cotton used. ' First ' quality, such as that shown in fig. 2, is usually a smaller mesh, and it would appear that purchasers requiring the ' best quality ' buy a net which causes more discomfort than would have been the case had the cheaper quality been taken. A third quality, for coolies, is also on sale. This can hardly be called mosquito netting and as may be imagined from the appearance of the sample illustrated in fig. 3 the discomfort of sleeping under it must be extreme. In fact in hospitals where this is used, it is quite usual for the patient to put his head outside the net to gain access to more air."



" First quality " netting in common use —29,30 mesh 70/110 cotton. Finer than necessary.



" Second quality " netting used for all experiments with mosquitoes—22/23 mesh 60/100 cotton.

[Reproduced from the *Malayan Medical Journal.*]

There appears to be no information about the relation between the mesh of cotton mosquito netting and the percentage of daylight or air admitted. The question to decide in Malaya is the largest mesh which will exclude the vectors of malaria. At the Institute for Medical Research during 1929 over 50,000 mosquitoes passed through the experimental cages ; in no instance did one escape through the netting, which was a 22/23 mesh of 60/100 cotton. Such a mesh is therefore efficient and nothing smaller need be used. As to the form of net, the author recommends that which is large enough to fall to

the ground some distance from the bed. This gives room for a table and reading lamp. Another recommendation is that since *A. maculatus* is still seeking blood in the early morning mosquito nets should not be removed from the bed until full daylight.

For the method of measuring the size of the apertures and the thickness of the thread reference is made to Colonel MacArthur's article in Home's " Engineer and Prevention of Malaria."

A. G. B.

Missiroli (A.). La casa rurale nei riguardi igienici e sociali. [**Hygienic and Social Aspects of Rural Housing.**]—Supplement to *Riv. di Malariologia.* 1931. Vol. 10. No. 1. 59 pp. With 28 text figs. [22 refs.]

This supplement to the *Rivista di Malariologia* deals with rural and colonial housing in general—the choice of site, orientation of the building, construction, water supply, sewage and conservancy, cattle-stalls, etc.—questions with which architects and builders in the tropics are familiar. A small part only (pp. 12–17) is concerned with special features of such buildings when they have to be erected in a malarious district, attention being directed to the avoidance of re-entrant angles, or dark recesses in which mosquitoes can hide and find protection, to free ventilation, light and smooth walls, avoidance of curtains and hangings, raising of the ground floor off the soil level, and finally mosquito-proofing. The relative advantages of Monel (nickel 68 per cent. with copper and a trace of iron) in non-rusting and durability over the usual materials are stated. Stress is laid on the provision for automatic closing of mosquito-proofed doors and the need to ensure that they open outwards [a point not always remembered even by those who should and really do know better]. The whole is a clearly written brochure on rural housing applicable to tropical conditions.

H. H. S.

i. Schander (R.) & Götze (G.). Ueber Ratten und Rattenbekämpfung (mit besonderer Berücksichtigung der Wanderratte *Mus decumanus* Pall.). [**Rats and Measures to combat them.**]—*Zent. f. Bakt.* II. Abt. 1930. July 29. Vol. 81. No. 8/14. pp. 260–284. With 3 text figs. [Numerous refs.]

ii. —— & ——. Ueber Ratten und Rattenbekämpfung (mit besonderer Berücksichtigung der Wanderratte *Mus decumanus* Pall.). —*Ibid.* Sept. 4. No. 15/22. pp. 335–367. With 1 text fig. [1 page of refs.] [Prussian Agric. Experim. & Research Inst., Landsberg.]

i. This article gives a detailed description of the destructive character of the rat and of its menace as a transmitter of disease to human beings. It deals almost entirely with the sewer rat *Mus decumanus.*

ii. The authors deal here with baits and the rat poisons incorporated in them. Numerous experiments were made with a whole series of match boxes in cages, each containing a different bait, to

determine quantitatively which were the most acceptable to rats by the amount consumed in a given time. Among the grains tested were rye, wheat, barley and oats. Decided preferences were not manifested. An experiment was set up to see whether a preliminary 10 days feeding with a specific food would bring out a preference for that particular food ; this was found to be the case with corn, cooked potatoes and horse flesh as the three test substances. Corn, bread and potato proved to be better baits than red herring, flesh and cheese, whilst bacon, syrup and cabbage stalk were not at all satisfactory. Fish may be useful in certain localities but not on the large scale. The addition of milk or butter milk to white bread improves its attractiveness. A table is given of relative values of baits with simple bread at 100 ; in this table the values of bread with anise, bread with milk, oatmeal, corn, oats, maize, linseed meal, uncooked potato, apple, tallow, raw meat, fresh fish, and sugar are, 30, 60, 80, 50, 50, 20, 10, 10, 0, 70, 0, 10 and 0 respectively. The best and most practical bait for large scale operations is fresh, well baked, white bread. The poison attack can only succeed if it is introduced suddenly and unexpectedly on top of a preliminary simple baiting. It is natural to suppose that the addition to baits of a substance with an odour might be a special attraction to rats just as valerian is for cats, but this was not found to be the case. Poisoned baits may be lightly wrapped in paper to prevent scattering and should be touched by hand as little as possible. All uneaten poisoned baits must be carefully gathered up on the day after use as otherwise subsequent attempts at poison attack may be foiled.

A considerable number of poisons have been specifically tested or criticized. Among these are bulbs of sea leek (*Scilla maritima*), barium bread or meal containing 20 to 25 per cent. barium carbonate, arsenic, thallium sulphate, fluorides, phosphorus, strychnine, trimonomethylxanthin, zinc phosphide, plaster of paris, etc. Some of these are too dangerous to use and others are unsatisfactory for various reasons. Those which are favoured are sea leek, barium, phosphorus and certain commercial preparations.

These articles, containing a wealth of detail, which cannot all be extracted, should prove invaluable to organizers of " rat weeks " and to those who employ rat trapping and rat poisoning as antiplague measures. References are given to the very abundant literature on the subject.

W. F. Harvey.

HEINEMANN (H.). Der derzeitige Stand unseres Wissens ueber die klinische Bedeutung der serologischen Blutuntersuchung, insbesondere im tropischen Lande. [**The Clinical Importance of Syphilitic Serum Testing in the Tropics.**]—*Arch. f. Schiffs- u. Trop.-Hyg.* 1931. Jan. Vol. 35, No. 1. pp. 11–26. [Refs. in footnotes.]

At the second conference in Copenhagen on serological tests for syphilis an estimate was arrived at of the relative values of the Wassermann and flocculation reactions and the conclusion reached that the best of these latter are on an equality with the former. The author, who would go further than this and maintain that some flocculation

reactions are superior to the Wassermann test, has himself used the 3rd modification of the Meinicke test and Müller's test along with the Wassermann. His experience during the last 10 years has extended to nearly 40,000 sera and his conclusions are that (1) at least one of the flocculation reactions should always be combined with the Wassermann ; (2) where patients are intelligent enough to give a good case history, serum tests are quite as valuable in eastern lands as in Europe. Malaria and leprosy are sources of error ; (3) special care is to be exercised in the deductions made from tests where the patient is uneducated and unable to give a good case history—(a) When he belongs to a race in which yaws is not common, the serum test, especially if repeated in order to exclude non-specific temporarily positive reactions, is valid without an exact case history. (b) When he belongs to a race in which yaws is endemic then these reactions must be most carefully scrutinized in the light of the clinical manifestations if they are to be diagnostic of syphilis.

W. F. Harvey.

Oonvala (J. H.). **A Note on the Microscopical Examination of Faeces.**—*Indian Med. Gaz.* 1930. Oct. Vol. 65. No. 10. pp. 551–552.

The concentration method of Yorke and Adams was found superior to other methods both for protozoal cysts and helminthic ova. In this method a fairly large sample of faeces is suspended in a large quantity of water and allowed to stand for 15 minutes when the surface scum is removed. The liquid portion is then transferred to another glass cylinder and kept for 24 hours. At the end of this time the deposit is centrifuged, washed two or three times and then examined. This method, besides being efficient as a means of concentration also facilitated examination by the removal of unwanted débris.

W. F. Harvey.

Burke-Gaffney (H. J. O'D.). **The Polynuclear Count of Cooke in Tropical Practice. A Preliminary Note.**—*Trans. Roy. Soc. Trop. Med. & Hyg.* 1931. Mar. 13. Vol. 24. No. 5. pp. 549–556. [9 refs.]

In the Cooke modification of the Arneth count the average number of nuclear lobes per cell counted is the constant which is used in comparison. No portion of a nucleus is counted as a lobe except when its connexion with the nuclear body or the other lobes is reduced to a fine filament only. Cooke gives the figures for a healthy person as 10, 25, 47, 16 and 2 in the classes I, II, III, IV and V, which series furnishes an average weighted mean of 2·75. The author has, with some difficulty, obtained 37 cases of normal persons and his average of lobes per nucleus is 2·65. His present studies are merely preliminary but show a high degree of sensitiveness of the polynuclear count in bacterial infections, considerable sensitiveness in protozoal and helminthic infections and a usefulness as indicator of clinical progress. It is desirable to combine the polynuclear and differential counts.

W. F. Harvey.

i. Smith (E. C.). **Cultivation of the Spirochaetes associated with Tropical Ulcer.**—*Proc. Roy. Soc. Med.* 1930. Dec. Vol. 24. No. 2. pp. 217–220 (Sect. Trop. Dis. & Parasit. pp. 1–4). [10 refs.] [Med. Research Inst., Lagos, Nigeria.]

ii. ——. **A Note on the Bacteriology of Tropical Ulcer.**—*West African Med. Jl.* Lagos. 1931. Jan. Vol. 4. No. 3. pp. 68–69. [6 refs.]

i. The medium used was prepared as follows :—

(1) Mix together normal salt solution 320 cc. and 2 per cent. nutrient agar 40 gm. (2) Sterilize 10 mins. at 120° C. (3) Allow to cool to 37° C. and add 15 cc. fresh human blood, or failing human, rabbit blood. (4) Shake to mix. (5) Distribute by sterile syphon into culture tubes. (6) Incubate to test sterility.

It was found that the medium was most suitable for culture when the blood formed a delicate coagulum throughout it instead of retracting and expressing serum. Inoculation was carried out by first cleansing the surface of the ulcer with swabs soaked in sterile water and then applying light constriction with a tourniquet above the ulcer. A clear serous fluid exuded from the surface of the ulcer and this was introduced in amounts of 0·5 to 1 cc. into the upper half of the column of medium. Incubation was aerobic at 37° C. and cultures were examined after 3 days by dark field for living spirochaetes. Subcultures, to the number of 32, at intervals of 4 to 10 days have been successful but it has not been possible to obtain pure cultures of the spirochaete.

Inoculation trials were made on volunteers, some of whom had, or were convalescent from, tropical ulcer. The controls in these cases consisted of inoculations of the other arm with the organisms, fusiform bacilli and pseudomonas, associated with the spirochaete. The mixed nature of the culture was a complication in the experimentation, but it was found that (1) the spirochaetes in this mixed culture could produce a lesion resembling tropical ulcer, (2) the fusiform bacilli in a mixed culture and free from spirochaetes could produce similar lesions, and (3) pseudomonas in pure culture had no pathogenic effect.

ii. A mixed flora has been cultivated from typical "tropical ulcers" and the most noteworthy of these organisms are spirochaetes, fusiform bacilli and elongated motile Gram-negative bacilli simulating spirochaetes. Pure cultures have not been obtained nor has mutation of the fusiform bacilli to spirochaetal forms been observed.

W. F. Harvey.

Crozat (P.) & Assali (J.). Traitement de l'ulcère phagédénique par le lipo-vaccin antiphagédénique. [**Treatment of Phagedaenic Ulcer by Lipovaccine.**]—*Bull. Soc. Path. Exot.* 1930. Nov. 12. Vol. 23. No. 9. p. 995.

The lipo-vaccine contained in each 2 cc.—*Spirillum necrosans* 5 mgm., *Bacillus fusiformis* 5 mgm., Streptococci 30 million, Staphylococci 30 million, *Ps. pyocyanea* 30 million, and was given subcutaneously on successive days in doses of ¼, ½ and 1 cc., with repetition of the last dose if required. No injurious effect was observed as a result of injection and the phagedenic effect was arrested by the 4th day, when fusiform bacilli began to disappear. By the 10th day these bacilli should have disappeared altogether.

W. F. Harvey.

Schotte (André). L'ulcère phagédénique. Essais de traitement chirurgical. [**Phagedaenic Ulcer. Surgical Treatment.**]—*Bruxelles-Méd.* 1931. May 3. Vol. 11. No. 27. pp. 778–786. [31 refs.]

An article on all the aspects of tropical ulcer. The surgical treatment consists in curettage, free excision of the edges and subsequent application of Tiersch grafts.

A. G. B.

Rho (Filippo). Sull' opportunità di provare gli estratti testicolari nella cura topica delle suariate forme di piaghe ed ulceri tropicali. [**Treatment of Various Forms of Ulcer by Local Application of Testicular Extract.**]—*Ann. di Med. Nav. e Colon.* 1931. Jan.-Feb. Year 37. Vol. 1. No. 1–2. pp. 1–7. [32 refs.]

An account of the revival of an old method of applying " the energetic cicatrizing action of testicular hormone " reported ten years ago by Aievoli (*Riforma Medica*, 1921, No. 40). Fresh testes in thin slices from a guineapig are applied to the wound or an extract may be used [see *ante*, p. 57].

H. H. S.

Brennan (C. H.). **A Note on the Treatment of Ulcers.**—*Kenya & East African Med. Jl.* 1930. Oct. Vol. 7. No. 7. p. 203.

" By means of a large curved bistoury the whole of the infected tissue is removed completely. It should be noted that the ulcer is excised and not scraped.

" The resulting wound should be dressed with eusol, and eusol dressings should be continued twice daily for some days until the surface is clean.

" Afterwards a dressing of B.I.P.P. should be applied once daily for some days until it is certain that there is a clean granulating surface.

" The site can now be treated by skin grafting."

The author has found this method very satisfactory.

A. G. B.

Forbes-Brown (A.). **A Report on Ulcers.**—*Uganda Protectorate Ann. Med. & San. Rep. for Year ended 31st December, 1929.* Appendix VII. pp. 105–108.

This is a preliminary report since only 59 cases have been studied but the results are of interest. The author concludes that the ulcers seen in Uganda have nothing in common with veldt sore ; that the fusiform bacillus and spirochaete is found in nearly every case of phagedenic ulcer ; that the cause of chronicity is the absence of skinning, granulation being good ; that skinning starts as soon as parathyroid is administered. The year 1930 was to be devoted to a thorough trial of parathyroid.

A. G. B.

Couvy & Popoff. Note sur le traitement de la pneumonie par le salicylate de soude en injections intraveineuses (deuxième note). [**Treatment of Pneumonia by Intravenous Salicylate of Soda.**]—*Bull. Acad. Méd.* 1931. Feb. 3. Year 95. 3rd Ser. Vol. 105. No. 5. pp. 163–167. [4 refs.]

The authors refer to their first paper and to that of Moeller (*ante* p. 763) on salicylate treatment of pneumonia. They themselves have

treated 140 patients at Dakar over a period of two years, with 7 deaths, a fatality rate of 5 per cent. The cases are classed as very grave, grave and cases of average severity ; 54 were in the first category which furnished 6 of the deaths. The salicylate is in 1 : 30 solution, and 30 cc. are injected, either once daily or morning and evening. There were no untoward symptoms. The largest quantity given was 11 gm. in 6 days. The authors hope that other practitioners in Africa will try this treatment, with controls.

A. G. B.

WILKINSON (W.). [**Treatment of Pneumonia.**] [Correspondence.]—*Kenya & East African Med. Jl.* 1931. Apr. Vol. 8. No. 1. p. 33.

The author, writing from the Native Hospital, Kisii, asks his colleagues to test this treatment in pneumonia :

Calcium chloride	4 grains
Sod. salicyl.	16 grains
Dist. water	15 cc.

given intravenously twice daily during pyrexia and once daily for the following week : 30 grains quinine also is given during the fever. In the few cases tried this has proved " most satisfactory."

A. G. B.

MANIFOLD (J. A.). **A Study of Certain Features in Connection with Enteric Group Infections in the Army in India.**—*Jl. Roy. Army Med. Corps.* 1930. June, July & Aug. 61 pp. With 12 text figs. [30 refs.]

The subject with which this study deals is one of great importance to the army in India. An analysis is made of 522 cases of enteric infection in which the standardized agglutination technique of DREYER was consistently used. All these individuals had been inoculated with T.A.B. vaccine and it is to the question of the effect of this previous inoculation upon the diagnostic value of agglutination tests that the author partly addresses himself. A definite diagnosis of the specific type of enteric infection could not always be arrived at by agglutination test. The proportion varied from 75 per cent. positive in severe cases to 35·5 per cent. in the mildest cases. There is no doubt that inoculation agglutinins show definite rise, whatever the particular infecting typhoid organism may be, but it is improbable that this is merely a non-specific rise for it occurs in so much higher a percentage of cases of enteric infection than of non-enteric pyrexia. Although specificity of diagnosis cannot always be attained by agglutination test, one of " enteric group " infection is possible in the great majority of cases of average severity.

There would seem a possibility that the dose of vaccine recommended for reinoculation is too high and reference is made to the possibility of attaining good results by a small fractional dose. An analysis of the inoculation agglutinins of 427 cases showed that these were highest for the paratyphoid B component and lowest for the paratyphoid A. An important finding is that blood cultures, taken at the proper period

of illness and incubated for at least 10 days before being reported negative, afford as good results diagnostically in inoculated as in uninoculated cases. Numerous examples illustrate the points raised and an analysis of agglutination tests of 152 bacteriologically proven cases is given as an appendix.

W. F. Harvey.

Orpen (L. J. John). **Some Uncommon Causes of Enteric and Dysentery. (Preliminary Note.)**—*Jl. Med. Assoc. South Africa.* 1930. Sept. 27. Vol. 4. No. 18. pp. 549–550.

The author gives some details of (1) organisms commonly recognized as causes of enteric and of dysentery, (2) organisms stated to be causes of these diseases and (3) certain organisms isolated by himself from cases of enteric-like and dysentery-like disease. A complete identification of these last has, in most cases, still to be made. It would appear probable that a number of saccharose and even lactose fermenters may have to be included as causes of enteric and dysentery.

W. F. Harvey.

Haridas (G.). **Cirrhosis of the Liver.**—*Malayan Med. Jl.* 1930. Sept. Vol. 5. No. 3. pp. 90–96. [1 ref.]

This article is of interest from the morbid anatomy aspect, not the clinical or aetiological, since the information in respect of the two latter is very meagre. The facts and figures presented are the results of study of the case-sheets and post mortem records of the Tan Tock Seng Hospital for the 15 months ending 31st March, 1930. In all there were 284 cases, and these are divided into two groups: 99 admitted for cirrhosis of the liver, and 185 "latent cases," implying those without symptoms referable to this condition and discovered at autopsy. In both the great preponderance is noticeable among the Chinese. Thus, of the group of 99, there were 97 Chinese, 1 Indian, and 1 Javanese, the numbers of these races admitted to the hospital during the period being respectively 15,107, 2,422 and 411 (the last figure includes Malays and Javanese). In the group of 185, there were 170 Chinese, 13 Indian and 2 Javanese. Among the first group portal cirrhosis with small liver was commonest, Hanot's hypertrophic form once, biliary cirrhosis (5), syphilitic (5), schistosomiasis associated in two instances [but it is stated in another part of the paper "*Schistosomum japonicum* and *Clonorchis sinensis* were found in several patients"] and 11 cases of carcinoma supervening on cirrhosis were found. Among the latent cases the following types were discovered: fine diffuse cirrhosis (93), malaria pigmentation associated (19), coarse diffuse cirrhosis (11), syphilitic (10), atrophic (10), multilobular (11), portal congestion with cirrhosis (12), Clonorchis infection (6). As already stated, information as to cause is lacking; the question of alcohol and opium indulgence was asked of 20 patients only, the W.R. was done in 28, "six out of 21 cases gave a definite history of malaria." [Presumably these matters were investigated in others but no record was entered on the case-sheets or the author would doubtless have mentioned the fact.]

H. H. S.

VINT (F. W.). **Cirrhosis of the Liver in the East African Native.**—*Kenya & East African Med. Jl.* 1931. Mar. Vol. 7. No. 12. pp. 349–374. With 1 plate. [51 refs.]

A careful paper on the pathological histology of cirrhosis of the liver based on a series of autopsies on East African natives together with a consideration of its aetiology. The material was obtained from 100 consecutive post mortem examinations. It is interesting to note that the relative weight of the liver in normal African natives is higher than in Europeans. In the latter 50–55 oz. is usually regarded as the normal in adults of an average weight of 162 lbs.; but the average adult native weighs about 128 lbs., his liver 55·9 oz. (average of 175 cases) or the same as the European instead of the proportional 40–45 oz.

Among the 100 examined 31 showed no excess of fibrous tissue, 4 showed syphilitic lesions, 2 advanced amyloid degeneration, and the remaining 63 varying degrees of cirrhosis. The author did not find one case of true polylobular cirrhosis; some macroscopically resembling this form were found microscopically to be the monolobular. An early stage appeared to be hyperplasia of the connective tissue of Glisson's capsule. Destruction of hepatic parenchyma cells was always most marked at the periphery of the lobule adjoining the portal venous radicle. A round-cell infiltration was also a constant finding and from its character and distribution the author concludes that it is the result of a mild chronic toxin carried in the portal circulation. Malarial pigment was found in 69 cases. Changes of weight of the liver were significant. In the early stages (8 cases) the weights varied between 40 and 60 oz., with an average of 50; in more advanced stages (6 cases) the limits were 44 and 70, with an average of 52·5 oz.; in the well-developed stages (4 cases), between 61 and 71 with average 64·7 oz. In the very advanced, contraction took place with reduction in weight; in four such the weights varied between 22 and 41, with an average of 32·5 oz. Fatty degeneration was present in a certain number, but Dr. Vint could not detect any aetiological relationship between it and the cirrhosis.

Helminthic infestation was found in most; thus of the 63 there were 58 with *T. saginata*, 50 with *A. duodenale*, 35 with *Ascaris lumbricoides*, and the invasion was often heavy.

In discussing the cause of the fibrosis, the author concludes from the distribution of this tissue and of the round-cell infiltration that the portal venules are the channels of conveyance of the possible toxin. This toxin may arise from one of three sources: the worms present in the intestine, haemolytic poisons acting in the liver, or resulting from haemolysis produced by them, or, thirdly, toxic products of foodstuffs. Evidence incriminating the first is insufficient alone but on clinical grounds he concludes that the helminthic toxins are probably of a minor degree of toxicity. The distribution of lesions does not lend support to the idea that malaria is the cause, though it may have been operative in 14 patients where the infiltration was present both of the central vein and the portal canal. The question of the effect of diet is inadequately considered as the food value of the native diet belongs more to the realm of biochemistry; but so far as this aspect is discussed the diet is thought not to produce the cirrhosis as the indol and skatol resulting from metabolism of the East African native are insufficient in quantity. The author concludes that "while it is impossible to state definitely the origin of the substance causing the proliferation of the fibrous tissue of the portal canal, the evidence is

such that one must consider toxic substances produced by intestinal helminths as a causative factor." [The diet may play a larger part than Dr. Vint is inclined to ascribe to it. The East African native (the Masai excluded) lives largely on a vegetarian diet, and such causes more ammonia formation than does a meat diet. The consequent specific hepatogenic urea formation, by making excessive demands on the function of the liver, has been suggested as accounting for hepatic insufficiency and subsequent cirrhosis in native races.]

H. H. S.

Nazareth (F. X. de Siqueira). Dobó ou Dobá. [**Dobo.**]—*Arquivos da Escola Méd.-Cirurg. de Nova Goa.* Ser. B. 1930. No. 3. pp. 477–509.

Dobó, a corruption of Dobá, is the name given by the Hindus of Goa to a disease affecting almost, if not absolutely, exclusively Hindu children. The word dobá means a " little round box " and the disease is said to be so called because the enlarged liver has the size and shape and in consistence imparts to the examining hand the sensation of a box. Nearly all those attacked are 2 years old or less, of the better class of Hindu, mostly Brahmans ; the sexes are equally involved, and non-vegetarians as well as vegetarians.

The main symptoms are fever, usually up to 100° F., but occasionally going to 102° or even 104° F., loss of appetite, insomnia, general debility, pallor and wasting, with swelling of the abdomen from enlargement of the liver which may extend to the level of the umbilicus. There is not as a rule any pain till the later stages. There is a subicteric tint of skin and conjunctivae, diarrhoea with pale faeces, urine diminished in amount and bile-stained ; the spleen enlarges later and ascites appears. In some cases haemorrhages occur, haematemesis, epistaxis, haematuria, and perhaps convulsions, and death takes place in coma (? cholaemic) after 3 to 18 months' illness. Brief notes are given of 14 cases, and the question of diagnosis is discussed, as to whether the condition may be infantile biliary cirrhosis, infantile kala azar, of dietetic (avitaminic) origin, malarial or syphilitic, or other toxic state. Pathologically, the liver shows a cirrhosis of the monolobular type and later pericellular, very like Hanot's cirrhosis.

Mention is made of the work of Dr. S. K. Mukherji (reference not given) and to that of Dr. Viadyanath Iyer (*Indian Medical Gazette*, 1926, Dec.) on the subject. No treatment has so far been found of any avail.

H. H. S.

Corke (Winifred H.) & Bush (Lilian M.). **An Investigation of Some Cases of Anaemia in Tamil Women.**—*Malayan Med. Jl.* 1930. Dec. Vol. 5. No. 4. pp. 129–135.

The authors at the Women's Hospital, Kulah Pilah, studied 31 cases of anaemia, 26 of which were in pregnant Tamil women, and 5 in non-pregnant. The cases fell roughly into three groups—

" A. Pernicious type of anaemia, with a colour index over 1 and abnormal red cells (normoblasts and megaloblasts). In most of these cases the red cell count ranged between 750,000 and 1,500,000, and the white cell count was moderately low with a relative lymphocytosis. A few

myelocytes were nearly always present. There were 22 cases of this type with 7 deaths, usually following premature labour.

" B. Aplastic type with a very severe degree of anaemia, a high colour index, and no abnormal cells. There were 3 cases with 3 deaths.

" C. Secondary type with a lower colour index and no abnormal cells. There were 6 cases with no deaths."

Tabulated details are given of selected cases and tables of each group with the headings, Wassermann reaction, malarial parasites, helminthic ova, progress, treatment, etc. The authors were struck by the high percentage of cases (39) with positive Wassermann without clinical manifestation of syphilis [but do not give any control figures]. They agree with PINEY who believes that syphilis is commoner in sufferers from pernicious anaemia than in the general population. Some patients improved with antisyphilitic treatment; others did not. Malaria and ankylostomiasis played but a small part in this series. They conclude that the pernicious anaemia of Indian women is not caused by pregnancy but is aggravated thereby. " It seems to originate in a combination of a blood-destroying infection, such as malaria or syphilis, and an insufficiency of vitamins in the diet." [No dietetic details are given.]* A. G. B.

MEYERS (F. M.). Over Bloedarmoede bij Contractarbeiders. [**Anaemia in Contract Labourers.**]—*Geneesk. Tijdschr. v. Nederl.-Indië.* 1930. Dec. 1. Vol. 70. No. 12. pp. 1196–1212. [9 refs.] [Central Hosp., Membang Moeda, E.C. Sumatra.]

Two hundred consecutive cases of anaemia (under 55 per cent. Hb. Sahli) were studied by the author. Among his native (Javanese) labourers anaemia was four times as frequent in women as in men. Yet the more serious degrees were more frequently seen in men. Simple hospitalization without any particular treatment cured the condition without exception in a comparatively short time. In pregnant women recovery took longest. Treatment with ferrum redactum, 1–4 gm. per day, had no apparent influence on the duration. [In the discussion the contrary opinion was emphasized.]

As regards etiology a certain part is played by malaria (splenic enlargement), more in men than in women. Yet this influence is not very important and the author could practically exclude from his records the other notorious cause of tropical anaemia, hookworm disease. [In the discussion again stress was laid upon the exceptional position of the author's field of labour in this respect in comparison with other parts of the East Coast of Sumatra.]

In the etiologically doubtful cases the author invariably found an increased percentage of reticulocytes as a sign of abundant regeneration of the blood, often also enlargement of the spleen as a sign of increased deterioration. As a partial explanation, he thinks that social circumstances have a certain influence. Better general care of the labourers is accompanied by less non-classified anaemia among them.

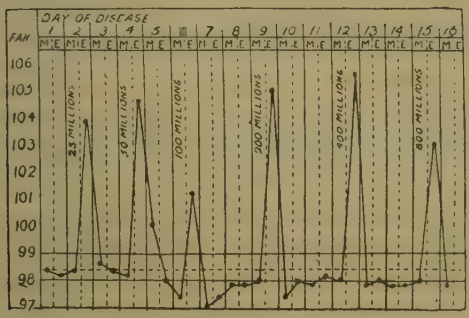
W. J. Bais.

MCGOLRICK (Leo). **Non-specific Protein Therapy in Elephantiasis.**—*Brit. Med. Jl.* 1930. Dec. 6. p. 957. With 2 text figs.

A male Chinese was admitted to the Weihaiwei Hospital with solid oedema of the left leg below the knee, the affected limb being fully twice

* See also *Bulletin of Hygiene*, Vol. 5, p. 835 (WILLS & MEHTA).

the size of the other. He gave a two years' history. He was put to bed, the limb firmly bandaged and T.A.B. vaccine given as in the chart.



Temperature reactions to intravenous injection of T.A.B. vaccine in increasing doses of 25, 50, 100, 200, 400 and 800 million organisms on second, fourth, sixth, ninth, twelfth and fifteenth days respectively in non-specific protein therapy in elephantiasis.

[Reproduced from the *British Medical Journal*.]

There was a steady diminution in size; the bandage had to be readjusted daily. On the 16th day he left. The author is convinced that elastic pressure alone could not have achieved this result. Whether the condition was filarial or of other origin is not discussed.

A. G. B.

Marone & Tessitore (C.). Un caso di voluminosissima elefantiasi scrotale. [**A Large Elephantoid Tumour of the Scrotum.**]—*Arch. Ital. Sci. Med. Colon.* 1930. Sept. 1. Vol. 11. No. 9. pp. 513–516. With 2 text figs. English summary (3 lines).

A man of 35 years, a native of Jakata (Belgian Congo) with a scrotal tumour measuring 77 by 65 by 20 cm. and weighing 94·5 kgm. The patient was emaciated and though he seemed to improve for a time after the operation he died on the thirteenth day, "the cause being undetermined."

H. H. S.

Lopez Nussa (E.). Simpatectomia peri-arterial en la elefantiasis. [**Peri-arterial Sympathectomy in Elephantiasis.**]—*Bol. Asoc. Med. de Puerto Rico.* 1930. Mar. & Apr. Vol. 21. No. 176. p. 5.

A preliminary report on 3 cases in which the femoral artery of an elephantoid limb was decorticated by injection of boiled water from 3 months to 3 days earlier. In one case there was some reduction in the size of the limb.

Clayton Lane.

Scriver (Jessie Boyd) & Waugh (T. R.). **Studies on a Case of Sickle-Cell Anaemia.**—*Canadian Med. Assoc. Jl.* 1930. Sept. Vol. 23. No. 3. pp. 375–380. With 4 figs. & 2 charts. [10 refs.] [Royal Victoria Hosp., & Path. Dept., McGill Univ., Montreal.]

This being the first reported case of sickle-cell anaemia from a Canadian clinic the authors wish to record the behaviour of the red

cells *quasi in vivo*. It is a fine study, and its vivid feature is that it supports and confirms the *in vitro* conclusions of HAHN and GILLESPIE (see this *Bulletin*, Vol. 25, p. 387) that the red cells of persons with the sickle-cell trait are transformed into sickles *in vitro* as a result of asphyxia, and that the sickleing phenomenon is reversible.

The patient is a negro girl of 7 years born in New York, and so far as the family history can be got it tells of a relative who had died with symptoms similar to hers—cough, night sweats, vague pains in legs and joints and occasionally in abdomen, poor appetite, and increasing fatigue. The physical signs were pallor of mucosae and of palm and sole, greenish-yellow sclerae, slightly enlarged heart and soft systolic murmur, no enlargement of liver or spleen, and no (palpable) adenopathy. The laboratory observations were slight urobilinuria, no intestinal parasites, negative Bordet-Wasserman test, positive reaction to 0·1 mgm. of old tuberculin intradermally, and an X-ray picture of enlarged glands at hilus of lung. The blood examination showed, inter alia, red corpuscles 2,600,000, haemoglobin 45 per cent., about 10 per cent. of red corpuscles sickle or oat or some similar shape, a few nucleated red cells, and (in preparations stained by brilliant cresyl blue) reticulation in about 50 per cent. of the red corpuscles; leucocytes 12,000, eosinophiles 4·8 per cent., mast-cells 1·0 per cent. Resistance to haemolysis was moderately increased and the presence of bilirubin was very evident.

If sealed preparations of wet blood were examined at once the percentage of sickles was about 10, but when they were examined twenty-four hours afterwards the percentage of sickles became more than 80·0. If, however, dried smears were made from the wet preparations by removing the cover-glass it was found that by exposure to the air most of the sickles had returned to the normal circular form and that only about 10·0 per cent. of the cells in the dried smear were still sickles—the reversion of the great majority to the normal form had been "practically instantaneous." Subsequently, by producing local stasis in different ways and then making (with as little as possible exposure to the air) both wet preparations and dry smears from the asphyxiated area it was found that while the dry smear showed no appreciable increase in the percentage of sickle-cells, practically all the red corpuscles in the wet preparation showed some irregularity and 28 per cent. were "markedly distorted." The following interesting table may be extracted :—

	CO_2 content, Vols. per cent.	O_2 content, Vols. per cent.	Percentage of O_2 saturation.	Percentage of sickle-cells.
Blood taken without stasis ...	50·3	3·2	33	15–20
Blood taken with stasis ...	49·5	2·2	23	95
Blood taken after local immersion in hot water and friction to promote maximum oxygenation ...	44·9	6·0	62·5	5

From their observations the authors argue that the massing of sickle-cells in sinuses and organs at autopsy and in other circumstances "may be purely an agonal phenomenon when O_2 pressure must in the

process of death be lowered well below the critical point"; and from the facts of sickleing in the blood-stream and of reversibility of the sickleing reaction, they agree with some other observers that sickle-cell anaemia is not a disease of the spleen or the bone-marrow but is a congenital peculiarity within the negro race.

A. Alcock.

BRANDAU (G. M.). **Incidence of the Sickle-Cell Trait in Industrial Workers.**—*Amer. Jl. Med. Sci.* 1930. Dec. Vol. 180. No. 6. pp. 813–817. With 1 plate. [13 refs.]

The following are the author's own conclusions :—

" 1. The history, however important in other respects, is of little value in the detection of subjects with sickle-cell trait, but may be suggestive.

" 2. The physical signs are not diagnostic. Absence of scleral color anomalies or of lymph-node enlargement may possibly be regarded as evidence against the presence of the sickle-cell trait in any one individual.

" 3. Examination of moist blood films is a simple method of diagnosing the condition.

" 4. The percentage of the occurrence of the sickle-cell trait in 150 negro men applying for work was 6·67 per cent."

A. Alcock.

LAVIER (G.). Sur cinq cas dont trois mortels d'intoxication aiguë par la quinine. [**Five Cases, Three Fatal, of Acute Quinine Poisoning.**] —*Bull. Soc. Path. Exot.* 1931. Mar. 11. Vol. 24. No. 3. pp. 184–187. [4 refs.]

In October 1918, at Salonica, owing to a general offensive there was a large increase of malarial cases, and stock solutions were made up, one containing sulphate of soda 120 gm. to the litre, another quinine hydrochloride 65 gm. to the litre, which gave 1 gm. to a tablespoon. An infirmier took the quinine bottle in mistake for the sulphate of soda and gave five patients a full " quart " (16 gm. quinine) swallowed at a gulp. Three died after 5, 10 and 20 minutes respectively with clonic followed by tonic convulsions. The other two vomited several times, evacuating part of the poison. After clonic muscular contractions they went into coma, emerging some 40 hours later, after which they slowly recovered. One had quinine amblyopia which gradually improved but had by no means disappeared a month later when he left for France. The other, admitted for " quinine-resistance," showed no trace of infection during the month he was under observation and Lavier thinks he was cured. These two probably absorbed 10 gm. each. The autopsy findings on the three fatal cases are given. The author notes that the first sign of poisoning, affection of the bulb, appeared in two minutes.

A. G. B.

BINET (Léon) & FABRE (René). Quinine et sang splénique. [**Quinine and Splenic Blood.**]—*C.R. Soc. Biol.* 1931. Apr. 24. Vol. 106. No. 12. pp. 1116–1118. With 1 text fig. [2 refs.]

The authors have previously found that in dogs injected with quinine urethane, after 48 hours the quinine can be found in the blood cells but not in the plasma. They have now compared in 3 dogs the quinine content in the circulating arterial and venous splenic blood (method of Stass-Otto,

modified by Ogier ; alkaloidal residue examined for fluorescence). They find that with the subject at rest the venous splenic blood contains twice as much quinine as the arterial, which they explain by the observation that the splenic blood is twice as rich in cells.

A. G. B.

SADLER (Eileen S.), DILLING (Walter J.) & GEMMELL (Arthur A.). **Further Investigations into the Death of the Child following the Induction of Labour by Means of Quinine.**— *Jl. Obstet. & Gynaecol. Brit. Empire.* 1930. Vol. 37. No. 3. pp. 529–546. With 4 text figs. [14 refs.] [Pharmacol. Dept., Univ., Liverpool.]

The following extracts from the conclusions of this paper are of general interest :—

" 1. When three doses of quinine (grs. X) are given at hourly intervals the peak of urinary excretion and, therefore, probably the maximal concentration in the blood of the mother lies usually between the sixth and twelfth hour after the first dose : there is evidence that wider spacing of the dosage [for induction of labour] is not advantageous.

" 2. Quinine is readily excreted into the placenta (1 : 66,000) and liquor amnii (1 : 10,000) ; it has been found in foetal tissues in strengths (1 : 50,000—1 : 100,000) which are capable of toxic effect and after intervals which suggest that maternal reabsorption from the foetus is slow and that foetal urinary excretion (1 : 6,000) is limited. Cumulation of quinine in foetal tissues can occur."

" 6. Although there is experimental evidence to prove that quinine may cause intrauterine death of the child, statistics show that this risk is not greater than that of still-births from undiscovered causes in otherwise normal labours."

As test for quinine the herapathite test as modified by RAMSDEN & LIPKIN was used (*Ann. Trop. Med. & Parasit.*, 1918, Vol. 11, p. 443).

A. G. B.

EPSTEIN (David). **A Comparison of the Action of Plasmoquine and Quinine on the Uterus.**— *Jl. Med. Assoc. South Africa.* 1931. Jan. 10. Vol. 5. No. 1. pp. 15–16. [3 refs.] [Pharmacol. Dept., Univ., Cape Town.]

It is claimed that plasmoquine is without action on the uterus and can therefore replace quinine with advantage in the treatment of pregnant women suffering from malaria. The author investigated the matter on isolated uteri of cats and guineapigs and on the cat's uterus in the living body. It was shown that given in moderately large doses plasmoquine is able to produce uterine contraction in these animals. FRANK'S statement [this *Bulletin*, Vol. 27, p. 658] that plasmoquine prevents the stimulating effect of quinine on the uterus could not be confirmed.

" In *therapeutic doses*, however, it appears that plasmoquine has no effect on the uterus, and this latter observation tends to confirm the clinical results. It thus follows, both from clinical tests and experimental work performed on animals, that plasmoquine can be considered as a safer drug to employ than quinine when treating pregnant women suffering from malaria, as long as therapeutic doses only are administered."

It is noted that, when equivalent doses are employed, the actions of quinine in the cat and in man are very similar.

A. G. B.

Slot (J. A.). Thrombopenie als verschijnsel van Chinineidiosyncrasie. [**Thrombopenia as a Symptom of Idiosyncrasy to Quinine.**]—*Geneesk. Tijdschr. v. Nederl.-Indië.* 1931. Jan. 1. Vol. 71. No. 1. pp. 46–48. With 1 text fig. & 1 plate.

Hypersensitivity to quinine may be manifested by nervous symptoms, by disturbance of the circulation, by haemorrhagic symptoms or by skin reactions. The author describes two patients suffering from the haemorrhagic type, one of whom (a Chinese) was studied in detail. After a single dose of 1 gm. quinine he showed bleeding of the gums, under the mucous membrane of the tongue and under the skin, blood in the urine, later also intestinal haemorrhage. The number of blood platelets was 16,000 (Fonio's method). The patient recovered and the number of blood platelets rose again during the recovery. A second dose of quinine (apparently administered with experimental purpose) produced a relapse of the haemorrhagic symptoms. The acute thrombopenia is to be considered as the cause of the bleeding. It is not clear whether this is brought on by increased deterioration of thrombocytes by the spleen or by inhibition of their production.

W. J. Bais.

Okonogi (Tatsuhiko). Experimentelle Untersuchungen ueber die Schädigung des inneren Ohres durch Chininarten. II. Mitteilung. [**Damage to the Internal Ear by Quinine.**]—*Japanese Jl. Med. Sci. IV. Pharmacol.* 1930. Dec. Vol. 5. No. 1. pp. 82*–83*. [Pharmacol. Inst., Imperial Univ., Tokyo.]

This is the second communication by the author. He used healthy young rats and guineapigs for the experiments. The quinine alkaloids and their derivatives were injected subcutaneously and after development of toxic effects the animals were killed by vital fixation with formol-Müller solution and preparations of the internal ear were made in the usual way and studied. From his investigations the author concludes that quinidine is the most active in producing changes in the inner ears ; vuzin and eucupin follow ; hydrocuprein is the least active. Rats appear to be more resistant to quinine than guineapigs.

E. D. W. Greig.

Goodson (John Augustus), Henry (Thomas Anderson) & Macfie (John William Scott). **The Action of the Cinchona and Certain Other Alkaloids in Bird Malaria.**—*Biochem. Jl.* 1930. Vol. 24. No. 4. pp. 874–890. [33 refs.] [Wellcome Chemical Research Labs., & School of Hyg. & Trop. Med., London.]

The authors have used Roehl's technique for testing the efficacy of drugs in bird malaria to compare the therapeutic values of the chief cinchona alkaloids and to investigate the efficacy of (*a*) a series of modified cinchona alkaloids and (*b*) a number of reputed, anti-malarial drugs.

There has been much discussion regarding the relative values of quinine, quinidine, cinchonine and cinchonidine and the four hydroalkaloids (hydroquinine, etc.) produced from them by reduction. The results of these trials in bird malaria indicate that among the first four there is little to choose. Reduction of quinine to hydroquinine enhances the activity, but reduction of the other three parent alkaloids has no effect. The five bases mentioned are arranged in the following descending order of activity :—hydroquinine, quinidine, quinine, cinchonidine, cinchonine, hydroquinine being clearly indicated as more active than any of the other four.

On gentle oxidation quinine is converted into an acid, quitenine, which has been repeatedly tried in bird and human malaria and found inactive. On esterification of quitenine basic character and anti-malarial action are simultaneously restored, and in the homologous series of alkylquitenines tested, anti-malarial activity increases as the series is ascended until at butyl- and amyl- quitenines, cures begin to occur. The maximum activity appears to be reached about this point, octyl-quitenine being inactive.

The reputed anti-malarial drugs tested included the alkaloids of the following drugs, all of which were inactive :—harmala, greenheart bark and akuamma seed (*Picralima Klaineana*, Pierre). The total alkaloids of four species of Alstonia barks were tried, viz., *A. congensis* and *A. scholaris*, both of which contain echitamine, and *A. macrophylla* and *A. constricta* which are rich in alkaloids but from which neither echitamine nor any other well-defined alkaloid has yet been isolated. *A. scholaris* and *A. constricta* were slightly active, the others not. A large number of well-known natural alkaloids, especially *iso*quinoline derivatives, were also tried and found inactive.

T. A. Henry.

Rinehart (James F.) & Anderson (Hamilton H.). **Effect of Emetine on Cardiac Muscle.**—*Arch. Pathology.* 1931. Apr. Vol. 11. No. 4. pp. 546–553. With 5 text figs. [12 refs.] [Med. School, Univ. of California, San Francisco.]

The authors summarize the literature of this subject as contained in 12 papers and express the opinion that the histological results of the action of emetine on cardiac muscle have not been reported in sufficient detail to command the attention they deserve. Their observations were made on rabbits. They write :—

" Lethal or sublethal doses of emetine hydrochloride in rabbits caused severe injury to the heart muscle. An interval of time was required for morphologic changes to become apparent. Animals dying in less than forty-eight hours showed evidence of heart failure in an interstitial edema of the heart muscle, indicated by spreading apart of individual fibres. In animals surviving lethal or sublethal doses for three or more days, necrosis of some fibres and a degenerative swelling in the remaining muscle fibres became evident. . . ."

A. G. B.

Chen (Mei-Yu) & Anderson (H. H.). **Effect of Emetine Hydrochloride by Subcutaneous Injection on Oxygen Consumption in Human Subjects.**—*Proc. Soc. Experim. Biol. & Med.* 1930. Mar. Vol. 27. No. 6. pp. 521–523. [1 ref.] [Med. School, Univ. of California, & Pacific Inst. of Trop. Med., San Francisco.]

The authors state that no work appears in the literature on the effect of emetine on oxygen consumption. Their experiments were done on 5 medical students and 3 patients. They give a table of the maximum functional changes during one hour's observation following subcutaneous injection of emetine hydrochloride. They state :

" In 8 subjects on which 16 experiments were carried out a slight depression of oxygen consumption was noted following subcutaneous injections of therapeutic doses of emetine hydrochloride. Respiration was increased when affected. Changes in pulse rate were inconstant. A definite fall in

blood pressure was noted in 2 instances when 455 to 520 mgm. were given over a 10-day period."

A. G. B.

Anderson (Hamilton H.) & Leake (Chauncey D.). **Toxicity of Acetarsone (Stovarsol) and its Calcium and Sodium Salts on Oral Administration to Rabbits and Cats.**—*Proc. Soc. Experim. Biol. & Med.* 1930. Vol. 27. pp. 267–270. [9 refs.] [Med. School, Univ. of California, & Pacific Inst. of Trop. Med., San Francisco.]

Reports on the therapeutic efficiency and toxicity of this drug have been conflicting. The authors' findings are as follows :—

" The minimal lethal dose of commercially available acetarsone administered orally to cats and rabbits is between 125 and 175 mgm. per kg. This is about 4 times the toxicity originally reported by Levaditi for the material prepared by Fourneau. In view of the relatively large number of clinical cases of acetarsone poisoning these experimental findings indicate the necessity of a revision of the recommended therapeutic dose.

" The minimal lethal dose of the calcium and sodium salts of acetarsone on oral administration to cats and rabbits seems to be about the same as that of acetarsone."

[Cases of stovarsol poisoning have been noted in this *Bulletin*, Vol. 24, p. 672 ; Vol. 25, p. 414 ; Vol. 26, p. 572.]

A. G. B.

Chen (Mei-Yu), Anderson (H. H.) & Leake (C. D.). **Rate of Urinary Arsenic Excretion after giving Acetarsone (" Stovarsol ") and " Carbarsone " by Mouth.**—*Proc. Soc. Experim. Biol. & Med.* 1930. Nov. Vol. 28. No. 2. pp. 145–148. With 1 text fig. [6 refs.] [Med. School, Univ. of California, San Francisco.]

" As part of the necessary pharmacological evaluation of a new drug before it should be tried even in controlled clinical experimentation, its rate of absorption (if given by mouth) and excretion should be studied. If possible this should be done on normal human volunteers in order that any deleterious effects may be noted to be guarded against when used in patients. Especially is this procedure important in order to judge the danger of cumulative effect before venturing to employ arsenical compounds on repeated administration in human therapy."

The authors note that, though it has considerable toxicity, there is no satisfactory information on this point in the literature of stovarsol. They have tried to supply the deficiency, including another drug in their study because it was found superior to stovarsol in the treatment of amoebiasis. They reached the following conclusions :—

" 3-acetylamino-4-hydroxyphenylarsonic acid (acetarsone N.N.R. or ' stovarsol ') and 4-carbaminophenylarsonic acid (' carbarsone ') are rather slowly excreted in the urine after oral administration. In one normal human subject 20 per cent. of the ingested arsenic in 0·5 gm. acetarsone was recovered in the urine in 72 hours, but only 8 per cent. of the arsenic of the same dose of ' carbarsone ' after 52 hours. In another normal human, 7 per cent. of the arsenic received in the same dose of acetarsone was found in the urine in 24 hours, while 13 per cent. was recovered from the same amount of ' carbarsone ' in 42 hours. Even though relatively small absorption from the bowel is indicated by these

experiments, ' carbarsone ' should be used cautiously in human therapy until it is established whether or not it is liable to injure the optic tract."

[Carbarsone is closely related to tryparsamide.]

A. G. B.

CORMAN. Intoxication par le stovarsol au cours d'un traitement d'enterite à trichomonas. [**Stovarsol Poisoning in Treatment of Trichomonas Enteritis.**]—*Bull. Méd. du Katanga.* 1930. Vol. 7. No. 5. p. 135.

After 5 days treatment with 0·75 gm. stovarsol in 3 daily doses the patient developed slight fever with jaundice and vomiting, followed by bleeding from gums and nose and a state of torpor ; pulse infrequent ; blood culture negative ; death 2 days later. Post mortem, fatty degeneration of liver, congestion of kidneys and digestive tract with submucous haemorrhages.

A. G. B.

MARCHOUX (E.). L'orsanine dans le traitement des états intestinaux. [**Orsanine in the Treatment of Intestinal Conditions.**]—*Bull. Soc. Path. Exot.* 1930. Nov. 12. Vol. 23. No. 9. pp. 933–935.

Orsanine, which is suggested as a substitute for the sometimes poisonous stovarsol, when administered by mouth does not pass the intestinal mucosa ; traces only can be found in the urine. Hence it is useless for parasites outside the gut. A single trial in each case showed it to be ineffective in amoebic dysentery and giardiasis. The author recommends it as a good intestinal disinfectant.

A. G. B.

DAVID (Norman A.) & LEAKE (Chauncey D.). **The Toxicity and Balantidicidal Action of "Di-Hydranol" in Guinea Pigs.**—*Proc. Soc. Experim. Biol. & Med.* 1930. Nov. Vol. 28. No. 2. pp. 196–199. [4 refs.] [Med. School, Univ. of California, San Francisco.]

The authors note that FAUST has recently reported on the clinical evaluation of this drug in man before the publication of an evaluation of the relation between the toxic and parasiticidal dose in experimental animals [this *Bulletin*, Vol. 27, p. 886]. They followed the technique of SWEENEY (*loc. cit.* p. 291). They found that " dihydranol " caused death in guineapigs in about 4 days at an average dose of 400 mgm. per kg. on single oral administration and that in natural *Bal. coli* infestation it was curative at a total of 200–225 mgm. per kg. when given daily or on alternate days at 75 to 100 mgm. per kg. Toxicity may however be encountered on continued administration of these doses.

A. G. B.

VANNI (Vittorio). Contributo alla conoscenza della balantidiosi umana. [**Human Infection with Balantidium.**]—*Riforma Med.* 1931. Jan. 26. Vol. 47. No. 4. pp. 123–125. With 1 chart in text. [12 refs.] [Inst. of Med. Parasit., Univ., Rome.]

The interest of this case is largely due to the almost complete absence of intestinal symptoms and their replacement by toxic manifestations.

A woman of 50 years complained of general itching. A week later urticaria appeared, at first in localized patches, soon becoming general,

with temperature 39·5° C., tongue furred with bright edge, pulse 90. The abdomen was tender on deep pressure over the epigastrium and there was slight meteorism. The blood showed 8 per cent. eosinophilia and a faecal examination revealed many *Bal. coli* and *Chilomastix mesnili*, but no ova of helminths. She was restless, with vomiting and precordial pain. Treatment by rectal injections of chloral did not relieve the urticaria, nor did calcium and adrenalin ; yatren had no effect on the parasites. Finally, enemata of thymol 1 gm. with alcohol 10 cc. and water 200 cc. were administered daily. The temperature fell to 37·2° C. on the sixth day, and the Balantidia were no longer found ; two days later it rose again to 40·4° C. but was normal on the tenth day and the Chilomastix also disappeared ; at a second blood examination eosinophiles were absent. The origin could not be determined ; the patient had had no contact with monkeys or pigs. [There is nothing in the history pointing to the Balantidial infection being a condition of longer standing and this toxic state as due to causes other than the Balantidium.]

H. H. S.

HEUBNER (Dietrich Leonhard). Lambliasis als Krankheit. (Beobachtungen an 173 Fällen.) [**Lambliasis as Disease : 173 Cases.**]—*Ztschr. f. Klin. Med.* 1930. Dec. 31. Vol. 115. Nos. 1 & 2. pp. 293–315. With 4 figs. on 2 plates. [42 refs.]

Since the use of the duodenal tube has become general, the parasite described in 1859 by LAMBL has been frequently seen in the duodenal juice and we have here a record of 173 cases studied at Zwickau in the last five years.

	Admissions.	Diseases of Digestive System.	Examined by Duodenal Tube.	Cases of Lambliasis.
1925	2,249	586	421	12
1926	2,980	750	614	31
1927	3,561	929	582	56
1928	4,169	1,005	531	37
Total ...	12,959	3,270	2,148	136
Percentage of Lamblia Cases	1·0	4·1	6·5	—

Details are given of 12 cases. The author concludes that *Giardia intestinalis* is a common parasite of man. As a rule it multiplies to such an extent that sooner or later it causes symptoms. Four per cent. of patients with symptoms of digestive disturbance are infected. The flagellates appear in the first juice delivered by the tube, especially after the use of "reflex remedies." They occur also in the stool, rarely in the gastric juice. They first colonize the duodenum and may beset the mucous membrane so closely as to lead to disturbance of function. They are often present in ulcer cases but seem to have no special relation to ulceration. They often wander into the bile passages where they may produce congestion. The symptoms produced are not characteristic, but it is best to eliminate the parasites, for which purpose neosalvarsan and spirocid are best.

A. G. B.

Sorge (Giuseppe). La cura della lambliasi intestinale con la naftalina. [**Treatment of Intestinal Lambliasis by Naphthalin.**]—*Policlinico.* Sez. Prat. 1931. Feb. 2. Vol. 38. No. 5. pp. 156–157. [1 ref.] [Med. Clinic, Catania.]

The author maintains that, in some cases at least, Giardia is pathogenic. He relates one case in detail and mentions briefly four others, in all of which Giardia, in vegetative or cystic form, were numerous in the faeces. Two had no intestinal disturbance, but others complained of abdominal pain and discomfort, flatulence, diarrhoea alternating with constipation and loss of weight. In the one detailed 20–30 Giardia were seen in a single field of the microscope. After trying stovarsol, yatren and rivanol without effect, he gave naphthalin, purified by sublimation, in doses of 20 cgm. thrice daily after food. In 5–6 days there was much improvement and after 10 days all symtoms had disappeared and the protozoon was no longer detected in the stools ; two months later they had not reappeared. The other patients responded equally well and the author regards naphthalin as specific for this condition.

H. H. S.

Kritschewski (I. L.), Grünbaum (F. T.) & Schapiro (S. L.). Ueber die Natur der Immunität beim Rückfallfieber. X. Der Einfluss der Ausschaltung des retikuloendothelialen Systems aus dem Organismus auf die Erreger der Infektion. [**Immunity in Relapsing Fever. Influence of Blocking of R.E.S. on the Agent of the Infection.**]—*Krankheitsforschung.* 1930. Mar. Vol. 8. No. 2. pp. 113–136. With 28 text figs. [17 refs.] [Microbiol. Research Inst., Education Commissariat R.S.F.S.R., Moscow.]

This contribution is devoted to the investigation by histological methods of the organs of mice infected with *recurrentis* after splenectomy and blockade and subsequently sacrificed at various stages of infection. The method of tissue fixation and staining was as follows :—

Fix in 5 per cent. formalin 24 hrs. Wash. Water-free pyridin 24–72 hrs. Wash. 24 per cent. gelatin solution containing 1 per cent. carbolic crystals 1–2 hrs. at 37° C. Fixation of gelatinized tissues in 20 per cent. neutral formalin 72 hrs. Wash. Freezing microtome. Sections in 96 per cent. alcohol 1 hr. Wash three or four times. Sections in 5 per cent. uranium nitrate 2–3 hrs. at 37° C. 1 per cent. silver nitrate 3–18 hrs. Transfer sections to dish containing 25 cc. of 0·25 per cent. freshly prepared silver nitrate to which has been added 15 cc. of 70 per cent. gum arabic solution. Prepare at same time 15 cc. of 5 per cent. hydroquinone and 15 cc. of 70 per cent. gum arabic. This second mixture is now added to the dish containing the sections. Watch the reduction. Quickly wash in distilled water. Transfer to slide. Dry with filter paper, acetone, xylol, balsam.

Numerous excellent microphotographs are provided showing the disposition of the spirochaetes in the organs of splenectomized and of normal mice and the findings of this elaborate investigation support the interpretation that removal of R.-E. tissue does in fact hold up the physiological disappearance of spirochaetes. In the splenectomized and blockaded animals the organ sections show enormous numbers of spirochaetes disposed in strings and felt-like masses indicating a massive proliferation which is not observed, at least at corresponding stages, in the unblockaded animals. The explanation assigned is that owing

to the removal of R.-E. tissue, lytic antibodies are not formed in adequate amount.

J. C. G. Ledingham.

Kritschewski (I. L.), Semzova (O. M.) & Ratner (M. I.). Ueber eine noch unbekannte Funktion des retikuloendothelialen Systems. XI. Die Unabhängigkeit der die chemotherapeutische Wirkung bestimmenden Funktion des Retikuloendothels von der Abwehrfunktion. [**Chemotherapeutic Function of R.E. System is independent of the Defence Function.**]—*Ztschr. f. Immunitätsf. u. Experim. Therap.* 1930. Vol. 67. No. 5/6. pp. 417–434. 9 refs.] [Microbiol. Research Inst., Education Commissariat R.S.F.S.R., Moscow.]

Any criticism of the views of Kritschewski and his colleagues is usually followed promptly by the publication of a fresh batch of experiments supporting the original thesis of the authors. Here, Kritschewski, Semzova and Ratner take up the challenge of Kikuth and Regendanz that a chronic relapsing form of trypanosome infection rather than a quickly fatal form must be chosen if one is to prove that the efficacy of a chemotherapeutic remedy depends on the intactness of the R.-E. system. They select therefore *T. gambiense* infection in mice for further *ad hoc* experiment and find that splenectomy carried out during the first or second crisis does not affect the course of the disease but seriously affects the therapeutic potency of the drug used (salvarsan). They also extend their work to *Sp. usbekistanica* infection in guineapigs and report that 90 per cent. of the splenectomized guineapigs but only 15·3 per cent. of normal animals were not rendered sterile by salvarsan.

J. C. G. Ledingham.

Tscherikower (R. S.). Von der Bedeutung des retikuloendothelialen Apparates bei Infektionskrankheiten. VII. Das retikuloendotheliale System bei Trypanosomeninfektionen. [**The R.E. System in Trypanosome Infections.**]—*Ztschr. f. Immunitätsf. u. Experim. Therap.* 1930. Vol. 68. No. 1/2. pp. 182–192. [6 refs.] [Microbiol. Research Inst., Education Commissariat R.S.F.S.R., Moscow.]

In this contribution the view of the Moscow school that in trypanosome infections the R.-E. system plays no part in defence is upheld and critics of this view such as Kikuth and Regendanz, Nieschulz and Wawo-Roentoe [see previous reviews] are reminded that Kritschewski and Schwartzmann's original claim referred only to mice. The author now reports a further series of experimental results showing that removal of the spleen does not affect the course of trypanosome infections in mice (*T. evansi* and *T. suaru*) and that it matters not whether the trypanosome is introduced intraperitoneally or subcutaneously. In rats, also, splenectomy does not affect the course of *T. evansi* infection but it is admitted that after infection with *T. gambiense* the course of the disease in splenectomized animals is somewhat more acute, particularly if the route of injection is intraperitoneal.

J. C. G. Ledingham.

Gilmour (C. C. B.). **A Case of Melioidosis in Singapore.**—*Malayan Med. Jl.* 1931. Mar. Vol. 6. No. 1. pp. 12–13.

A patient sent into hospital in a moribund condition as one of suspected smallpox proved on bacteriological examination to be one of melioidosis. The history was of a fever lasting about 7 days and of a rash on the 5th day of illness. Examination after death showed by the distribution, type and severity of the rash that this was not a case of smallpox. The rash consisted of firm tense pustules varying from $\frac{1}{8}$ to $\frac{1}{4}$ inch in diameter, not umbilicated nor crenated, and without definite areola. Papules, vesicles and pustules were all present. "These pustules were situated on the face, where they were thickest on the cheeks, least on the forehead, and there were only a few on the nose and neck. On the abdomen they were more numerous than on the chest. . . . There were a few pustules on both arms, and on the back, but none on the forearms or hands. There were two pustules in the groins, a few on the thighs and none on the legs and feet." An area of consolidation at the base of one lung was the only other lesion found post mortem. No cases of melioidosis have been found among rats examined in Singapore in connexion with plague.

W. F. Harvey.

Rogers (Leonard). **Result of the Forecast of Cholera, Smallpox and Plague Incidence in India in 1930, and New Forecast for 1931.**—*Indian Med. Gaz.* 1931. Feb. Vol. 66. No. 2. pp. 61–65. [Summary appears also in *Bulletin of Hygiene.*]

With few exceptions the forecast for 1930 has proved to be substantially correct especially as regards cholera and plague. The methods by which the forecasts are made have been described in previous papers (see this *Bulletin*, Vol. 28, pp. 38 & 39). For 1931 the predictions for plague are low incidence in Bihar, the United Provinces and the South Deccan, about average figures for the Central Provinces and the North Deccan, and some excess over recent prevalence in the Punjab. For cholera no very serious epidemics are anticipated during 1931, or in the case of Assam, Bengal and South East Madras during the cholera season of these areas from November 1930 onwards. No very severe epidemic of smallpox is probable during 1931.

H. M. Woods.

Belfort (Fabio) & da Silveira (Fleury). Nota sobre a inoculação do trachoma. [**The Inoculability of Trachoma.**]—*Brasil Medico.* 1930. Dec. 20. Vol. 44. No. 51. pp. 1411–1414. [2 refs.]

The authors obtained their material for inoculation from a trachoma patient. *Staphylococcus albus* was present at first, but this was got rid of by 10 per cent. argyrol before the experimental material was taken. This was then inoculated on the nasal mucosa of a volunteer with negative result, but on the conjunctiva of another volunteer the disease developed to a florid state in 9 days, with chemosis and abundant mucopurulent secretion. Staphylococci and corynebacteria were present. Repeated inoculations on and in the conjunctiva of rabbits and a macaque produced a little hyperaemia only, no signs of trachoma. The author concludes therefore that trachoma is transmissible directly

from man to man, that the organisms of Weekes and Morax-Axenfeldt found in acute conjunctivitis play no part in trachoma, that inoculation must be directly on to the conjunctiva, that no initial trauma is necessary, the virus being capable of active penetration, and that adults are equally as susceptible as children (the volunteer was 55 years old), but are less often attacked because of their cleaner habits.

H. H. S.

THIM (Josef R.). Ätiologisch-morphologische Forschungsergebnisse ueber Trachom und verwandte Einschlusskrankheiten. [**Research in Trachoma and Similar "Inclusion Diseases."**]—43 pp. With 6 coloured plates. 1930. Pécs: Druck der Dunántúl Buchdruckerei und Verlags A.-G.

The study of films of exudates from cases of urethritis and conjunctivitis in adults and infants soon after birth and from cases of trachoma has convinced the author that a group of diseases exists which can be described under the general name inclusion diseases because of the occurrence of bodies resembling those originally described by PROWAZEK in trachoma. He distinguishes five distinct conditions —genital inclusion blennorrhoea, inclusion blennorrhoea of the newly born, inclusion catarrh of adults, swimming bath conjunctivitis and trachoma. Various stages in the evolution of these inclusion bodies or organisms are described. It is claimed that definite encystment has been demonstrated and that this proves the protozoal nature of the organisms. The paper is illustrated by six coloured plates which show clearly with what the author has been dealing. [Some of the structures depicted are undoubtedly organisms—bacteria in some cases, and flagellated protozoa such as not infrequently contaminate films owing to the use of impure water, in others. The remainder are granules of various sizes and colours grouped or scattered in the cytoplasm of cells, round blue bodies with or without one or more blue or red granules and lying free or within vacuoles in the cytoplasm of cells, large granular pink bodies and other structures. The author is undoubtedly convinced of the accuracy of his observations and the conclusions he has reached but it will require more evidence than that given in his paper and in the excellent coloured plates to convince the majority of his readers that he has not been dealing with bacteria, fragments of the cytoplasm of cells, residues of phagocytosis and extraneous organisms.]

C. M. Wenyon.

CHESTERMAN (Clement C.). **Tropical Myositis.** [Correspondence.]—*Trans. Roy. Soc. Trop. Med. & Hyg.* 1930. Nov. 25. Vol. 24. No. 3. pp. 359–360.

Dr. Chesterman gives brief details of two cases seen at Yakusu, Stanleyville, where loa and perstans infections are common, but *F. bancrofti* much less so. He regards the disease as "a cutaneous staphylococcal infection with metastatic inflammatory foci in muscles which may be determined by trauma or by the irritation caused by parasites."

A. G. B.

Tjokronegoro (R. M. Hadjidharmo). Specifiekte rheumatische hartafwijkingen op Java. [**Specific Rheumatic Disease of the Heart in Java.**] —*Geneesk. Tijdschr. v. Nederl.-Indië.* 1930. Dec. 1. Vol. 70. No. 12. pp. 1213–1218. With 4 figs. on 2 plates. [10 refs.] [Med. High School, Batavia, Java.]

A native, aet. about 40, who had suffered from a polyarthritis 7 months previously, died apparently from paratyphoid A (bacteriologically established). Post mortem a chronic endocarditis and pericarditis was found with typical Aschoff's nodules in the connective tissue of the heart. Soetedjo (see this *Bulletin*, Vol. 24, p. 70) examined 19 hearts with endocarditis in one of which the typical nodules were found. The author found an additional series of 28 hearts negative. Rheumatic disease of the heart is rare in Java.

W. J. Bais.

Turner (A. W.). **Black Disease (Infectious Necrotic Hepatitis) of Sheep in Australia : a Toxaemia induced by a Specific Bacterium** (*B. oedematiens*) **in Hepatic Lesions resulting from the Migration of Young Liver Flukes** (*F. hepatica*).—*Commonwealth of Australia. Council for Scient. & Indust. Res. Bull. No. 46.* 141 pp. With 52 figs. (1 map). [140 refs.] 1930. Melbourne.

Black disease is defined as " an acute infectious disease of sheep . . . caused by localized infection of the liver, in areas of necrosis, with *B. oedematiens* usually alone but in rare cases associated with other anaerobic organisms and apparently always associated with invasion of the liver by immature, wandering liver flukes (*Fasciola hepatica*)." The annual losses attributed to it in Australia may exceed a million pounds. The interest for human medicine resides in the association with wandering flukes and the experimental evidence that other liver-injuring factors such as wandering cysticerci and chemical liver irritants may produce a similar disease. The bacillus is present in the organ in a latent state in animals which have grazed over infected pastures, but such carriers only develop the infection when a *locus minoris resistentiae* is established in a spore-bearing organ.

This fine memoir deals exhaustively with the disease and should be consulted by interested persons.

A. G. B.

i. Kumm (Henry W.). **A Discussion of the Recent Literature on Infectious Epidemic Diseases associated with Jaundice.**—*Trans. Roy. Soc. Trop. Med. & Hyg.* 1931. Jan. 31. Vol. 24. No. 4. pp. 421–428. [44 refs.]

ii. Beeuwkes (Henry), Walcott (A. M.) & Kumm (H. W.). **An Obscure Epidemic Disease associated with Jaundice, observed in Nigeria, West Africa.**—*Ibid.* pp. 429–451. With 3 figs. (1 map). [2 refs.]

iii. Hudson (N. Paul). **Histopathology of an Epidemic Disease associated with Jaundice, occurring in Nigeria, West Africa.**—*Ibid.* pp. 453–460. With 6 figs. on 2 plates. [9 refs.]

These papers owe their origin to an epidemic of jaundice which occurred in the Kukuruku area of Nigeria, and was investigated by

the yellow fever experts of the International Health Division of the Rockefeller Foundation in West Africa.

i. " It is evident from this review that there is a marked confusion in the terminology connected with epidemic jaundice diseases. When we made an attempt to compare the disease studied in West Africa with conditions seen elsewhere, we found that the term ' infectious jaundice,' excluding Weil's disease, was used to denote a variety of jaundice conditions that had been called infectious because of their occurrence in epidemics. The disease we described had points of similarity with one or another of the reported maladies, but cannot be correlated with any particular epidemic until more is known about their specific causes.

" When we turned to the literature on ' catarrhal jaundice,' we found a continuation of the same confusion. The study brought out that, ' epidemic catarrhal jaundice ' and ' infectious jaundice ' (not including Weil's disease or bacterial jaundice) are acute specific diseases of unknown etiology, and may even be the same disease."

ii. " 1. An epidemic of an obscure disease associated with jaundice and accompanied by a mortality of 5·7 per cent. was encountered in the Kukuruku Division of Nigeria, West Africa.

" 2. The affection is liable to be confused with yellow fever as it resembles the latter, and some cases cannot be differentiated clinically, though the symptomatology is generally less marked, and the albuminuria is relatively mild. Sera from convalescents fail to afford protection against the virus of yellow fever.

" 3. The etiology is unknown, and the epidemiology obscure. No causative organism was isolated, and susceptibility of the usual laboratory animals was not demonstrated. Though certain epidemiological features suggest an insect vector, droplet contamination from close personal contact and infection from fomites were not definitely ruled out. Pfeiffer tests with *L. icterohaemorrhagiae* and agglutination tests with *B. typhosus* and *paratyphosus* A and B, as well as with *B. abortus* and *M. melitensis*, were negative.

" 4. The resemblance of this disease to infectious epidemic jaundice other than Weil's disease, or its possible identity with infectious epidemic jaundice, should be borne in mind.

" 5. The pathology studied in three cases apparently differs from that of any disease associated with jaundice previously described."

iii. " *Summary of Principal Findings.*—The liver shows irregular necrosis of parenchymatous cells, inflammatory reaction, regeneration, and bile stasis, while the kidneys present cloudy swelling, necrosis and mild fatty degeneration of the parenchyma, congestion, and bile-staining, with débris and a few hyaline casts in tubular lumina. In the spleen there are irregular congestion, necrosis and inflammatory reaction in germinal centres, with increase in endothelial leucocytes (mononuclears) and plasma cells in the pulp are noteworthy features, while the heart shows cloudy swelling and fatty degeneration of its muscle fibres. The lungs are congested, and small localized areas of inflammatory reaction are evident. In the stomach the material on the mucosal surface is suggestive of altered blood, and in the lymph node congestion and phagocytic endothelial leucocytes are present in blood spaces. Organs without significant changes comprise the pancreas, adrenal glands, and uterus.

" Bacteria were not seen in the paraffin sections. Levaditi preparations were searched for spirochaetes and leptospira without success. Guineapig tissues used to control the staining technique showed large numbers of *Leptospira icterohaemorrhagiae.*"

The author writes: " We were unable . . . to make a definite pathological diagnosis, and the identification of the disease must await further work in the large field of jaundice conditions in which the etiological agent has not been determined. In a differential diagnosis, we believe we have

excluded yellow fever, Weil's disease, relapsing fever, acute yellow atrophy of the liver, and so-called catarrhal jaundice."

A. G. B.

MARMO (Achille). Il " bigio " in Eritrea. [**"Bigio" in Eritrea.**]—*Ann. di Med. Nav. e Colon.* 1931. Mar.-Apr. Year 37. Vol. 1. No. 3–4. pp. 164–167. [2 refs.]

This condition has been seen in Somaliland (see this *Bulletin*, Vol. 27, p. 167), but these are the first cases described from Eritrea. The characteristics are a slow growing lesion of the mucous aspect of the lower lip, semilunar in shape, reddish in colour, an erosion with shallow ulceration, never extending to the skin. It is painless, does not itch and does not set up affection of the associated lymphatic glands. It is not syphilitic (at all events the W.R. is negative), nor tuberculous, no leishmania are found, nor any moulds—in short, no cause is known. Of the two cases here described one was a man of 25 years who stated that the first sign had appeared a year previously ; the second was a child of 7–8 years, with a history of the gradual spread of the lesion during 4 years, for the first two of which it had remained quite small. There was no rise of temperature ; a serous secretion would form yellowish crusts on the surface. Examination of sections and by cultural attempts yielded entirely negative results. As in the previous cases injections of neosalvarsan were tried, also antimony tartrate locally in 3 per cent. solution, and later stibosan injections (three of 0·1 gm. each) but without producing any amelioration.

H. H. S.

BERGSMA (Stuart). **Gastric and Duodenal Ulcer in the Black People of Abyssinia.**—*Arch. Intern. Med.* 1931. Jan. Vol. 47. No. 1. pp. 144–148. [6 refs.] [Amer. Mission Hosp., Addis Ababa, Abyssinia.]

Gastric and duodenal ulcers are generally regarded as rare among negroes ; in New Orleans records gastric ulcer was 20 times as rare among negroes as among whites and statistics of a New York hospital give 44 cases of duodenal ulcer, none of them among negroes. Among the black people of Abyssinia however these conditions are common. In two years some 200 patients with acute and chronic gastric and duodenal ulcers have visited the Clinic of the American Mission Hospital, and 16 have consented to operation. All but one had multiple healed ulcers and occasionally an ulcer in the acute or chronic stage ; the pyloric region was converted into a hard scarred fibrotic ring with the lumen greatly constricted. Posterior jejunostomy was performed. At the King of Abyssinia's hospital experience is similar and in two years there has been no case of gastric or duodenal ulcer in a white person. The chief difference between the American negro and the Abyssinian is the diet, which consists in Abyssinia of heavy sour bread and a sauce that is approximately 50 per cent. Cayenne pepper, with occasional beans and slightly cooked or raw meat. Pepper as a regular diet, the author observes, is likely to cause gastric derangement. He discusses the bearing of these observations on the pathogenesis of gastric ulcer.

A. G. B.

Pordon (A. A. A. C.). Een scheurbuikexplosie onder de gevangenen te Muntok. [**An Outbreak of Scurvy among Prisoners at Muntok (Banka, D.E.I.).**]—*Geneesk. Tijdschr. v. Nederl.-Indië.* 1931. May 1. Vol. 71. No. 5. pp. 463–467.

Pordon quotes very briefly 16 cases in which he ventured to diagnose scurvy, though the evidence is very poor and the majority of the patients showed subjective symptoms only. In the other cases the possibility of some type of purpura is not taken into consideration. The dietary in the prison was not deficient as regards vitamin C; auxiliary hypothetic factors (aversion of the prisoners to vegetables, overcooking of the food, influence of lack of light in the rainy period during which the cases occurred) are necessary to give an explanation of this epidemic outbreak of alleged avitaminosis C.

W. J. Bais.

Dychitan (Teodoro). **Contribution to the Work on Lapnus from the Point of View of its Epidemiology and History of its Discovery.**—*Jl. Philippine Islands Med. Assoc.* 1930. Nov. Vol. 10. No. 11. pp. 481–487.

Lapnus, which means "peeling of the skin," is a common affection in the Island of Mindoro, has been hitherto regarded as an ezcematous complication of malaria and is thought by the author to be pellagra. It prevails from March to August and disappears in September. It is attributed by the author to the use of rice stored undried, together with poverty which forbids the use of other food. The mortality is from 50 to 60 per cent. Five cases are briefly described, all in members of one family. In all but one there was burning sensation of the soles of the feet, followed by peeling of the skin, "like the sole of a slipper." In two instances the initial symptoms were stomatitis, gastralgia with pyrosis, formication and weakening of the lower limbs, and in two others apathy, somnolence and melancholy. Gradual loss of hair was usual. The fifth case was that of a child of two years who died in a month of inanition after vomiting; here again the skin of the soles peeled. Opacity of the cornea sometimes occurred. The patients treated themselves with sea water containing lemon juice, which, they found, gave relief. The author stresses the periodicity of the symptoms.

A. G. B.

i. Borchardt (W.). Beiträge zur Klimaphysiologie und -Psychologie der Tropen. [**Tropical Climatology.**]—*Arch. f. Schiffs- u. Trop.-Hyg.* 1929. Vol. 33. No. 10. pp. 505–532. [38 refs.] [Inst. for Ship & Trop. Diseases, Hamburg.]

ii. Ronnefeldt (F.). Material zur Frage der Akklimatisation von Frauen und Kindern im tropischen Westafrika.—*Ibid.* 1930. June. Vol. 34. No. 6. pp. 319–323. [St. Timothy's Hosp., American Mission, Cape Mount, Liberia.]

iii. Borchardt (W.). Grundumsatz und spezifisch-dynamische Wirkung im künstlichen Tropenklima.—*Ibid.* May. No. 5. pp. 258–262. [10 refs.] [Inst. for Ship & Trop. Diseases, & Physiol. Inst., Univ., Hamburg.]

iv. Borchardt (W.). Blutmengen- und Alkalireservebestimmung im künstlichen Tropenklima.—*Ibid.* June. No. 6. pp. 327–330. With 1 text fig. [6 refs.] [Inst. for Ship & Trop. Diseases, & Physiol. Inst., Univ., Hamburg.]

v. Kestner (Otto) & Borchardt (Werner). Klimauntersuchungen in den Tropen.—*Klin. Woch.* 1929. Vol. 8. pp. 1796–1801. [24 refs.] [Physiol. & Trop. Inst., Hamburg.]

vi. Borchardt (W.). Die Magenfunktion im künstlichen Tropenklima. (Nach Versuchen an Tieren und Menschen.)—*Ibid.* 1930. May 10. Vol. 9. No. 19. pp. 886–888. [10 refs.] [Inst. for Ship & Trop. Diseases, Hamburg.]

vii. ——. Experimentelle Beiträge zur Klimaphysiologie der Tropen.—*Beihefte z. Arch. f. Schiffs- u. Trop.-Hyg.* 1929. Vol. 33. No. 3. pp. 248–253 (332-337).

viii. Parjono, Radsma (W.) & Joenoes (M.). Das Sauerstoffbindungsvermögen der Eisengehalt und der Hämoglobingehalt des Blutes bei den Tropenbewohnern.—*Arch. Neerlandaises de Physiol. de l'Homme et des Animaux.* 1930. Vol. 15. pp. 73–96. [25 refs.] [Med. High School, Weltevreden.]

ix. van Berkhout (P. J. Teding). **Determination of Rest-Nitrogen in the Blood of Inhabitants of the Tropics.**—*Meded. Dienst d. Volksgezondheid in Nederl.-Indië.* 1930. Vol. 19. Pt. 1. pp. 30–43. With 1 text fig. & 2 figs. on 1 plate. [9 refs.]

These papers record investigations into the effect of the climate *per se* on otherwise *healthy* residents in the tropics.

i. Borchardt enumerates as the essential data for the successful acclimatization of Europeans: (1) Health; (2) Quinine tolerance; (3) Cardiac efficiency; (4) Sweating capacity; and (5) Temperament. He maintains that women on the whole do not do well, largely on account of increased disturbances of the genital system.

ii. Ronnefeldt, as a result of his carefully documented experience, disagrees with this, and considers the evidence brought forward in support of the contention insufficient. He also records it as his opinion that native women suffer as much as European in this respect.

iii. Borchardt finds that basal metabolism is not decisively affected. In these and many other experiments he records the reactions of male Europeans in a sweating chamber, in which the conditions of the climate of low-lying tropical regions are imitated by raising the temperature to 33° C., and the relative humidity to 95–98 per cent. The specific dynamic protein reaction is determined with a special diet intended for further experiments among vegetarian tribes, and was found to be demonstrable at ordinary room temperature, and to some degree slightly retarded in the sweating chamber.

iv. Borchardt finds that in the acute sweating experiments the total quantity of the blood is increased by 8·4 per cent.: the plasma by 13 per cent. and the erythrocytes by 4·7 per cent. Profuse sweating also means increased loss of Ca, K, and Na, and the alkali reserve is diminished.

v. With Kestner he found the degree of U.V. radiation in the Cameroon lowlands not commensurate with the height of the sun. They consider that pigmentation of the skin is a definite protection against heat, and that the increased cutaneous circulation in the heat regulation of the body occurs at the expense of the splanchnic blood supply, with a corresponding detrimental effect on the activity of the digestive organs.

vi. Borchardt determines in further experiments in the sweating chamber that the secretion and motility of the stomach are diminished very appreciably in man and animals (dogs), that the retention of the gastric contents is prolonged, and that the addition to the test meals of spices (curry and pepper) counteracts this, probably by increasing the blood supply of the organs concerned.

vii. Borchardt points out the importance of efficient heat regulation of the body in the process of acclimatization. In the sweating chamber, he found that good sweaters do not become hyperthermic, and vice versa. He maintains that this simple experiment should be adopted in deciding tropical fitness, and states that it also facilitates the elimination of those subject to vasomotor disturbances and neurasthenia. To counteract the diminished alkali reserve, which he considers an important factor in the causation of exhaustion in the tropics, he recommends the substitution of plant ash for salt in the diet.

viii. Parjono, Radsma & Joenoes record their findings as regards the Hb content of the blood estimated by determining its iron content and oxygen capacity, which give more accurate results than the hemoglobinometer (Sahli). While they find that the oxygen capacity, 21·4 per cent. for Europeans, 21·6 per cent. for natives, is higher than any recorded in Europe and America above 38° N. latitude (varying from the lowest): 18·5 per cent. (Haldane, London) to 21·2 per cent. (Haden, Kansas City), and that the iron content, Europeans 0·0531 gm. per cent., natives 0·0542 gm. per cent., is also higher than the *average* recorded in the same latitudes, they assign no cause for the difference.

ix. Van Berkhout finds after an elaborate investigation, by calorimetric and titrimetric methods into the rest-nitrogen of Europeans and natives, that the results do not point to a difference between the two. Both papers supply a detailed account of the technique employed.

G. E. H. Le Fanu.

Pawan (J. L.) & Camps-Campins (J.). **Notes on the Serum Calcium of Inhabitants of Trinidad, B.W.I.**—*Ann. Trop. Med. & Parasit.* 1931. Mar. 31. Vol. 25. No. 1. pp. 91–98. [6 refs.] [Govt. Bact. Lab., Trinidad.]

"1. The serum calcium in Trinidad of 74 persons—healthy and sick—averaged 10·15 mg. per 100 cc.

"2. Of 24 normal healthy individuals it averaged 10·74.

"3. There was a definite diminution in the serum calcium of persons with general debility and ulcers, whereas persons with ulcers and otherwise in good health show a rise above the normal.

"4. Nephritis cases show a low serum calcium—in some cases very low.

"5. In dental cases the serum calcium shows great variation."

A. G. B.

Asheshov (Igor), Taylor (J.), Morison (J.), Malone (R. H.) & Iyengar. Recherches sur le bactériophage dans l'Inde Britannique. [Communication faite . . . par le Major-Général J. D. Graham, C.I.E., I.M.S. . . . Délégue de l'Inde Britannique.] [**Investigations into Bacteriophage in India.**]—*Bull. Office Internat. d'Hyg. Publique.* 1930. Oct. Vol. 22. No. 10. pp. 1882–1892. [3 refs.]

A summary is given of separate researches conducted by different workers.

Asheshov with the collaboration of Drs. Saranjam Khan and Lahiri finds that after the action of a pure cholera bacteriophage on a culture, with production of lysis, a secondary resistant strain of vibrio develops ; this secondary culture is itself, however, susceptible to the action of a second strain of bacteriophage. Altogether 3 types of pure bacteriophage have been isolated, A, B and C, with reciprocal relations, that is to say, the third bacteriophage will cause solution of cultures of cholera which have developed resistance to any of the other two. With this fact established, it became a simple matter to devise technique for typing bacteriophages even in mixed culture and of estimating the number of corpuscles of each type of bacteriophage existing in such a mixture. As no one bacteriophage gives a permanent lysis of a cholera culture and as a combination of two gives such lysis only rarely, it is obvious that a mixture of the three types is indicated for purposes of prophylaxis and treatment. Most of the races of type A with rapid action are rather unstable and if stable are not sufficiently polyvalent. Endeavour is being made to find an omnivirulent mixture of bacteriophages with respect to the different strains of cholera vibrios freshly isolated, which shall produce permanent lysis in less than 2 hours and remain active for 4 or 6 months.

Taylor's work extended to both cholera and dysentery but in the case of cholera applied to the sporadic and not to the epidemic form. The cholera cases were definitely diagnosed as such and the vibrio isolated. A therapeutic bacteriophage of high activity was employed. The results showed that development of the bacteriophage was not essential to the cure of cholera and that administration of a bacteriophage capable of causing lysis of the vibrio isolated was without influence on the course of the disease. In the case of dysenteries, both of Shiga and Flexner types, in which proper controls were set up, there does not seem to have been any effect upon the disease traceable to the administration of bacteriophage therapeutically.

Morison used bacteriophage prophylactically in dysentery, with the result that only 5 cases occurred in 192 persons treated as against 28 out of 169 controls. In three epidemics in which bacteriophage was used therapeutically there were 15 deaths out of 57 treated and 50 deaths out of 92 untreated.

W. F. Harvey.

VAN LOON (F. H. G.). **Protopathic-instinctive Phenomena in Normal and Pathological Malay Life.**—*Brit. Jl. Med. Psychology.* 1928. Vol. 8. pp. 264–276. [Summary appears also in *Bulletin of Hygiene.*]

The main mental differences between races are said not to be those of the upper levels of the human mind ; they lie in the basic foundations of vital and instinctive tendencies. Among Malayans van Loon found that amok runners were often suffering from some infectious disease and that the symptoms were those of hallucinatory confusion, patients being impelled to flight and attack as reactions to imagined dangers and the agony and terror caused thereby. In latah a strong emotion, especially fright, causes the Malay woman to enter into a state of " hyper-imitativity " in which self-control is lost. The patient imitates everything done before her or said to her. Particularly interesting points are that latah is almost exclusively confined to

Malay women and to those who have passed long periods in subordinate positions. Many patients declare that their symptoms, of an anxiety character, had begun in youth and had been associated with sexual experiences.

The symptoms of latah have a primitive character and may be regarded as evidence of regression to mental levels ordinarily overlaid by more recently acquired and more complicated mental developments.

E. D. Macnamara.

Lefrou (G.). Un nouvel indice de robusticité chez les noirs. [**A New Index of Robustness for African Natives.**]—*Bull. Soc. Path. Exot.* 1931. Jan. 14. Vol. 24. No. 1. pp. 60–67. [3 refs.]

In selecting men for some particular object an index arrived at by some simple method may be useful. For military recruiting in France Pignet's index is used, which is Height in cm. less (Weight in kg. added to Chest Circumference in cm.). A figure below 10 is very strong, 11 to 15 strong, 16 to 20 good, 21 to 25 medium, 26 to 30 fair, 31 to 35 poor, above 36 very poor.

In attempting to apply this index to African natives it was found unreliable and according to the author attempts at readjustment suggested up to date are also unsatisfactory. That some method is necessary according to the author is exemplified by an example cited—Natives for work on the Congo railway were brought from Lake Chad and after *six months* en route were found unfit and had to be sent back [what natives would be fit after six months' travelling?]. It was found necessary to take into account the relative proportions of the body of the native as compared with those of a European and having realized that the native is relatively longer in the limb and shorter in the trunk than the European the author suggests a modified Pignet index as follows:—" Pignet sitting " = (weight plus circumference of chest) less sitting height, the following being his new scale: 70 and above—very strong, 69 to 65 strong, 64 to 60 good, 59 to 55 medium, 54 to 50 fair, 49 to 45 poor, 44 to 40 very poor. " The value of the new index corresponds with the impression of robustness as gauged by a glance at the subject." [No index is used, so far as is known, in recruiting troops or natives for work in British colonies. Some such method as that devised by the author might be of use to recruiters of labour but it would be necessary first to test the validity of the index in each tribe or group of tribes as they may vary very considerably in build. Even then the value of such an index may be lessened by a good many other factors and it is a question whether the impression gauged by a glance is not of greater value.]

H. S. S.

Bergsma (Stuart). **An Unusual Complication of Typhus exanthematicus observed in Abyssinia.**—*Trans. Roy. Soc. Trop. Med. & Hyg.* 1930. Nov. 25. Vol. 24. No. 3. pp. 355–356. [1 ref.] [American Mission Hosp., Addis Ababa, Abyssinia.]

The complication was massive gangrene of the lower extremities, which is described as not uncommon.

A. G. B.

Ahmadi (M. S. Nawaz). Intramuscular and Intravenous Quinine. [Correspondence.]—*Brit. Med. Jl.* 1930. Oct. 11. p. 621.

Bernard (Léon). La médecine et les médecins au Maroc.—*Bull. Acad. Méd.* 1931. Jan. 27. Year 95. 3rd Ser. Vol. 105. No. 4. pp. 115–123.

Bhandarkar (P. R.). Hedyotis Auricularia in Colitis with Special Reference to Human Amoebiasis and Cholera.—31 pp. With 1 fig. [8 refs.] 1930. Madras: Pharmacol. Research Inst., Post Box 504, Park Town.

Castellani (Aldo). A Little-known Type of Chronic Colitis.—*Proc. Roy. Soc. Med.* 1930. Oct. Vol. 23. No. 12. pp. 1729–1733 (Sect. Trop. Dis. & Parasit. pp. 39–43). [18 refs.]

Chin-Kyu-Sui, Shimokawa (H.) & Kamizawa (O.). Ueber den Einfluss fortgesetzten Chiningebrauchs auf den lebenden Körper. II. Bericht: Ueber den Einfluss desselben auf die Katalasen.—*Taiwan Igakkai Zasshi* (*Jl. Med. Assoc. Formosa*). 1930. Sept. No. 306. [In Japanese. German summary pp. 53–54.]

Cleland (J. Burton). Records of Australian Cases of Shark-Bite.—*Jl. Trop. Med. & Hyg.* 1930. Oct. 1. Vol. 33. No. 19. pp. 285–289. With 3 text figs. [8 refs.]

Dagnino (Vincenzo). Contributo alla nosografia del Gimma-Abba-Gifar (Etiopia).—*Arch. Ital. Sci. Med. Colon.* 1930. Oct. 1. Vol. 11. No. 10. pp. 613–620. English summary (6 lines).

Dickens (Paul Frederick). Liver Function Tests. A Plea for their Application in Tropical Medicine.—*Amer. Jl. Trop. Med.* 1929. Nov. Vol. 9. No. 6. pp. 489–492.

Gallagher (E. T.) & Freed (Harold). A Case of Undulant Fever complicated by a Malarial Infection.—*U.S. Veterans' Bureau Med. Bull.* 1930. Nov. Vol. 6. No. 11. pp. 991–993. [2 refs.]

Haberfeld (Walther). Atypische Lymphdrüsensporocytose ("Blastomykose").—*Arch. f. Schiffs- u. Trop.-Hyg.* 1930. Oct. Vol. 34. No. 10. pp. 549–554. With 2 text figs.

Hartsock (Frederick M.). Radiant Energy (Second Paper). Sprue and Pellagra.—*Milit. Surgeon.* 1930. Apr. Vol. 66. No. 4. pp. 523–526.

Horn (Arthur E.). The Tropical Training of Sanitary Personnel.—*Jl. Roy. San. Inst.* 1930. Aug. Vol. 51. No. 2. pp. 91–98.

Keatinge (L. R. H.). A Case of Elephantiasis Scroti from Darfur.—*Jl. Roy. Army Med. Corps.* 1930. Nov. Vol. 55. No. 5. pp. 372–373. With 2 text figs.

Knabe (Kurt). Eine kombinierte Yatren-Endojodin-Behandlung eines Falles von Lungen-Aktinomykose aus Mexiko.—*Arch. f. Schiffs- u. Trop.-Hyg.* 1930. Oct. Vol. 34. No. 10. pp. 539–542. [8 refs.]

Low (G. Carmichael) & Cook (A. Bramwell). Thrombo-Phlebitis Migrans. A Report of Two Cases in Asiatics.—*Lancet.* 1931. Mar. 14. pp. 584–585.

Namikawa (Hiroshi). Ueben den Wirkungsmodus einiger chemotherapeutischer Präparate bei Protozoenkrankheiten. I. Die Abhängigkeit der Wirkung der Chemotherapeutica von bestimmten Organen, insbesondere dem reticuloendothelialen System.—*Taiwan Igakkai Zasshi* (*Jl. Med. Assoc. Formosa*). 1930. Sept. No. 306. [In Japanese. German summary pp. 54–55.] [Inst. for Scientific Research, Formosa.]

Nowosselsky (Wassili A.). Kolloidchemische Bindungsreaktionen von Germanin an Eiweisskomplexe. II. Ueber die Einwirkung von Bayer 205 auf die Proteinkomponenten des hämolytischen Systems.—*Ztschr. f. Immunitätsf. u. Experim. Therap.* 1930. Vol. 68. No. 3/4. pp. 328–341. [9 refs.] [State Chemo-Pharmaceut. Research Inst., Moscow.]

Roest (P. K.). Raskruising op Java. (Resultaten van een voorloopig anthropologisch onderzoek.)—*Geneesk. Tijdschr. v. Nederl.-Indië.* 1930. Sept. 1. Vol. 70. No. 9. pp. 897–914.

Sautet (J.). L'iode dans le traitement des diarrhées fonctionnelles des pays chauds.—*Bull. Soc. Path. Exot.* 1929. Dec. 11. Vol. 22. No. 10. pp. 916–918.

Schneider (Otto). Subtropische, unter dem Bilde der Syphilis oder des Sodokufiebers verlaufende Insektenstichinfektion.—*Arch. f. Schiffs- u. Trop.-Hyg.* 1931. Feb. Vol. 35. No. 2. pp. 109–110.

Self (P. A. W.) & Corfield (C. E.). The Determination of Total Alkaloids in Cinchona Bark.—*Quarterly Jl. Pharm. & Pharmacol.* 1930. July-Sept. Vol. 3. No. 3. pp. 410–416. [3 refs.]

Shimokawa (H.), Chin-Kyu-Sui & Kamizawa (O.). Ueber den Einfluss fortgesetzten Chiningebrauchs auf den lebenden Körper. I. Bericht: Ueber den Gehalt an Glutathion (reduzierte Form) in Organen und Geweben.—*Taiwan Igakkai Zasshi* (*Jl. Med. Assoc. Formosa*). 1930. Sept. No. 306. [In Japanese. German summary pp. 51–53.]

Stalder (H.) & Lauterburg (M.). Unsere Erfahrungen in den Tropen. (Spital Dr. A. Schweitzer, Gabun, Lambarene A.E.F.).—*Muench. Med. Woch.* 1931. Apr. 10 & 17. Vol. 78. Nos. 15 & 16. pp. 637–639; 675–678.

REVIEWS AND NOTICES.

PARSONS (Robert P.) [Lieut.-Com., M.C., U.S.N.]. **History of Haitian Medicine.** Foreword by Edward R. STITT, Rear Admiral, M.C., U.S.N.—pp. xxviii+196. With 21 illustrations & 1 folding map. 1930. New York: Paul B. Hoeber Inc. [$2.25.]

This small book, well printed on good paper and illustrated by a map and over a score of photographs, is an elaboration of a paper published in May 1929 in the *Annals of Medical History*, and is full of interesting information. Following a brief introduction is a chapter on the French Colonial Period and an account of Public Health, so-called, in the 18th century. The condition of things in the 19th century is well described in a chapter entitled The Cost of Independence, and the remaining five chapters deal with the years subsequent to the American occupation in 1915.

What would be an interesting period, the 17th to 19th centuries, cannot be described in any detail because records of that time are almost non-existent. Slaves were introduced from many parts of Africa " from the mouth of the Senegal at 17° N. on the west coast, round the Cape and up to the Mozambique at 10° S. on the east coast," bringing new diseases and Voodoo methods. Some space is devoted to yellow fever and REED, CARROLL, LAZEAR and AGRAMONTE are eulogized, but, as in most American works, no credit is given to, in fact here no mention is made of, the " poor man at the gate " who pointed the way, Charles FINLAY. For protection the Haitian of early days used necklaces of citrons and bags of camphor held to the nose; superstition dies hard and in the meningitis epidemic of 1928 the children wore similar necklaces or belts of citrons and adults used camphor inhalers when approaching strangers or meningitis patients. As early as 1802 Dr. DELORME recommended the filling of swamps, building of latrines, cleaning streets, planting trees and prohibition of throwing rubbish into ditches.

The century of independence, 1804–1915, was a time of cessation of progress, from the medical aspect; doctors were also politicians, lawyers and coffee growers, doctoring being the smallest ingredient, and, in the latter part of the 19th century, of the four classes of practitioners noted, those trained in France, those trained at the local school at Port au Prince, Health Officers with commissions from the President of the time, and pure charlatans, the last greatly predominated. As enlightenment progressed the local students, in addition to a degree or licence, demanded, not unreasonably, that they might also receive some teaching in medicine, and with the advent of Dr. Léon AUDAIN matters began to improve. He started a medical journal, *La Lanterne Médicale*, which appeared every two months from 1899 to 1911, and he established a Laboratory of Parasitology and Clinical Bacteriology.

During 1910–1915, difficulties were great; there were constant revolutions, 7 presidents in rapid succession were deposed, assassinated or ran away. [The reviewer treated one of these for dysentery; a courtly old gentleman of 64 who complained of the quiet and depressing life of Jamaica. He related how, the day before his arrival, he had had to murder 16 prisoners in cold blood, after which he rifled the treasury and escaped, a few hours before the plot for his assassination was to be put into effect.] The salary of the dean of the medical school, nephew of a former president, was 80 dollars a month, that of the teachers 30, that of the chief surgeon 15, but none was paid regularly.

The Americans now took matters in hand; as the author states, with a curious mixture of metaphor: " This Augean stable . . . was a virgin field in which to apply the knowledge of every branch of medicine," and in the short space of 10 years " an unspeakable hot-bed of diseases has been transformed into a relatively clean and healthful land." Haiti's needs were summed up by Dr. P. W. WILSON as " soap, salvarsan, and

sunshine; le bon Dieu furnishes the sunshine." Yaws was a great scourge.

Want of space forbids our detailing the methods employed—the application of modern hygienic measures with typical American thoroughness.

There is grave fear that when the American occupation comes to an end, progress will cease and retrogression begin, for the native Haitian shows no organizing or administrative ability, there is almost complete absence of "medical conscience" and total lack of scientific view-point; empiricism is all in all.

H. H. S.

France: Ministère de la Guerre. Direction du Service de Santé. **L'oeuvre du Service de Santé militaire en Algérie 1830-1930.** [The Work of the Military Health Service in Algeria, 1830–1930.]—363 pp. With 32 figs. [7 facsim. autographs] & 2 coloured plates. 1931. Paris: Charles-Lavauzelle & Cie, Boulevard Saint-Germain, 124.

From a preface by Médecin général inspecteur Toubert we learn the inception of this book. It is the work of 16 collaborators, doctors, pharmacists or administrators, who were serving at the time in Algeria and who write with a personal knowledge of the surroundings of the men whose work is commemorated. It starts with a chapter in which the medical work of the military health service of Algeria is summed up. In Chapter II is an account of the early struggles with disease; Chapter III deals with the surgery practised in the period and in the last chapter is an historical account of the diseases studied with the lives and work of the early researchers, above all Laveran. The book forms a permanent record of the discoveries of the century in Northern Africa.

A. G. B.

Lukis (Pardey), the late [K.C.S.I., Knight of Grace of the Order of St. John] & Blackham (R. J.) [C.B., C.M.G., C.I.E., D.S.O., M.D., etc.]. **Tropical Hygiene for Europeans and Indians.** Revised and Enlarged by Lt.-Colonel A. D. Stewart, M.B., F.R.C.S.E., etc. Fourth Edition.—pp. xi+441. With frontispiece & 79 figs. 1931. Calcutta: Thacker, Spink & Co. for the St. John Ambulance Association, Indian Council. [Rs.5.]

To write a book on technical matters for instruction of the non-professional reader is probably one of the most difficult tasks for medical men to undertake. In the first place there is the ever-recurring problem as to its scope and no two are likely to agree exactly how much to include and what to leave out; secondly, to be of real value the instruction must be to a considerable extent dogmatic; thirdly, the information must be strictly accurate. These last two often tend to incompatibility.

Sixteen years have passed since the last edition of *Tropical Hygiene* was issued and though the original form has been retained as far as possible, the advances in public health, sanitation and hygiene have been so great, particularly in tropical countries, that the work of revision and bringing up to date, undertaken by Lt.-Colonel Stewart, must have been arduous. As the book has been enlarged by nearly 50 per cent. the present edition may almost be looked upon as a new work. An introductory chapter has been inserted treating of the history of public health administration from Greek and Roman times, traversing the hygienically dark era of the Reformation down to our own day, first in England, then in India, and it has been brought so up to date as to include the report of the Simon Commission of 1930. Further additions comprise brief sections on sprue, filariasis,

relapsing fever, leprosy and typhus ; there are new chapters on Maternity and Child Welfare, School Hygiene, Personal Hygiene, and the International health relationships of India ; that on Insects has been entirely revised and that on Camp Hygiene enlarged to discuss Fairs and Melas and their connexion with disease. The Malaria chapter has been practically re-written, and whereas in the old edition, that on Air dealt with its chemical constitution, with the products of respiration, air-space requirements and purification, these are now omitted as being " too technical for the scope of the book " and have been replaced by a general talk, probably equally instructive and certainly more interesting to the laity.

It is with no intention of carping criticism that we call attention to a few points which are likely to be misinterpreted by, and so may mislead, the man in the street. " Fortunately for us, the bacillus of tuberculosis is an exceedingly delicate organism . . . and it is nearly always killed by complete drying " (p. 39). Nothing is said of its having a waxy envelope to resist such drying and the fact of its delicacy would seem to be contradicted later in the book when, under disinfection we find : " Immersion in a 20 per cent. hot solution of washing soda suffices, however, for most infectious diseases, but it will not serve in cases of infection by the tubercle bacillus " (p. 323). Again, though pneumonic plague is mentioned (p. 26), on the following page is the surprising dictum " a plague patient is not infectious and there is no need for being afraid of going near him." Again, enteric carriers " may be harmless *unless they have to do with food supplies* " (p. 33 ; italicized in text). This is too sweeping. The reviewer personally investigated the case of a carrier, a music teacher, who was responsible for infection in 4 houses which she visited to instruct the children, and in another instance where a musketry instructor infected 6 of his small squad (4 died), probably by handling their gunstocks without adequately washing his hands after defaecation. In the section on Rabies (p. 388) : " If the biting animal remains alive and well for 10 days after biting a human being . . . there is no danger that the person bitten will contract hydrophobia. In such cases, therefore, there is no necessity for treatment." This ignores altogether the possibility of " intermittent rabies " and the danger of ceasing treatment because the animal remains alive and well for 10 days (see this *Bulletin*, Vol. 21, p. 223). Minor points which may be mentioned in passing, for attention in the next edition, are : that sprue " is probably an infection with the bacillus of dysentery " (p. 23) ; that the " duration of infectivity in yellow fever is from the 3rd to 6th day of fever " [it is given correctly on p. 80] ; that D'HERELLE was the discoverer of bacteriophage (p. 15). TWORT (1915) anticipated him by two years, though it is true that the studies of D'HERELLE on dysentery (1917) first stimulated interest in the problem. The *Tropical Diseases Bulletin* is misnamed (p. 229).

In reviewing a book with so many good points it would not be fair to end on a carping note. The chapter on vitamins is new and quite adequate, that on clothing is good, useful and sensible, without too much detail. Advice on the use of alcohol is generally sound, but it is difficult to grasp the reason why " the consumption of a small amount of alcohol at the end of the day's work helps the average man to get through trying work better than he might otherwise " ; presumably he is stimulated in advance by the thought of what is coming. The fact that this book has reached a fourth edition is evidence that it meets a demand and as the number of non-medical Europeans visiting India is large it should continue to make a wide appeal.

H. H. S.